

Chemical Process Machinery. 2nd ed. E. Raymond Riegel. New York: Reinhold, 1953. 735 pages. Illus. \$12.50.

Chemical engineers and practicing chemists will welcome the appearance of the new edition of another text of Professor Riegel. This edition has brought the show window of chemical process equipment abreast of current development. Scores of drawings, photographs, and tables are generously given to make the description of machinery readily understandable. Throughout the book there are 597 figures and 92 tables.

New materials have been added in almost every class of process equipment in this edition. In the second chapter on "Devices for the Dry Reduction in Size of Solid Materials," two new crushers manufactured by Allis-Chalmers and a newly developed ball mill are presented. Numerous magnetic separators and related devices using permanent magnets instead of electromagnets are the new features in Chapter 3 on "Screening and Grading Equipment." Other equipment which has been included in subsequent chapters are: "Zipper," a closed belt conveyor; newly developed multisphere for gas storage under high pressure; several new chemical pumps; proportional feeder containing a Pitot tube; the Lapp Pulsafeeder; multiclone; P-A cyclonic scrubber and P-A Venturi scrubber; electromagnetic air filter; the string discharge rotary vacuum drum filter; drum suction filter of panel type; centrifugal filters; continuous operating separators and clarifiers; Conkey integral evaporator which is a long-tube evaporator with natural circulation and is a self-supporting type manufactured by General American Transportation Corp.; Conkey flat heating surface evaporators with the Rosenbled channel switching system; downflow, low-temperature evaporators suitable for handling fruit juices; turbo-drier of rotating shelves; bubble cap and tray construction; continuous crystallizer of Krystal System which also produces a classification of the crystals.

Entirely new treatment is devoted to the fundamentals of distillation and fractionation and the mixing of liquids. The materials included for the first time are molecular distillation, absorption refrigeration, and new methods of measurements and automatic instrumentation. In the chapter on "Devices for Heating and Cooling," Riegel has given a comprehensive introduction to the application of atomic energy to the power generation.

Although descriptions of a few important pieces of processing machinery and notes regarding recent developments are missing in the book, it has fulfilled its purpose as a text of chemical process machinery and it gives a logical treatment from the standpoint of their application. The coverage is comprehensive and up to date. The book is recommended as a text to chemical engineering students. For practicing engineers and manufacturing chemists, the book should prove to be extremely useful in the selection of equipment for processing needs.

For a number of years the selection of a text in processing equipment for chemistry students who are minors in chemical engineering has been a difficult problem. The ordinary text in chemical engineering seems to be too quantitative to stimulate the interest of chemists who are not prepared for equipment design. A satisfactory solution is now provided by Riegel's book which, however, contains just enough numerical illustrations for more insight to the equipment.

In all chemical plants and most petroleum refineries, the most important piece of equipment is the reactor in which chemical reactions are taking place. The initial investment in a reactor usually accounts for a major percentage of the total cost of a plant. The performance of a reactor has been a day-to-day concern to chemical engineers supervising a plant. So far the description of this important chemical processing equipment is missing in texts and books dealing with chemical processing equipment.

In congratulating Professor Riegel on his contribution, this reviewer would like to suggest the inclusion of chemical reactors in the next edition of *Chemical Process Machinery*.

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Speech and Hearing in Communication. 2nd ed. of *Speech and Hearing*. Bell Telephone Laboratories Series. Harvey Fletcher. New York-London: Van Nostrand, 1953. 461 pp. Illus. \$9.75.

This is a highly authoritative and inclusive account of present-day knowledge of speech and hearing—with a little about language as well—in particular application to the operation of communications systems. Dr. Fletcher as a young man had something to do with measuring the charge of the electron, but after he joined the Bell Telephone System in 1916 his work turned to acoustics; he was an early president of the Acoustical Society of America. Since his retirement from the post of Acoustical Research Director of the Bell Telephone Laboratories he has returned to his native Utah to become Director of Scientific Research at Brigham Young University. He is heartily to be congratulated for having organized so well in this book, not only the massive results of 35 years of investigation by agencies of the American Telephone and Telegraph Company, but also the many essential contributions from other laboratories and writers. References to all this work abound, and there are both name and subject indices.

The book is recommended to students and teachers of speech, to audiologists and otologists concerned with hearing, as well as to communications engineers who deal with the multifarious applications of such information. It supplants Fletcher's first book on these subjects, which was published many years ago.

Communications engineers have to make their living out of tiny amounts of energy. "Joe took father's shoe