

Liquid Extraction (2 ed.), Robert E. Treybal, McGraw-Hill, New York (1963). 621 pages. \$16.50. (Continued from November, 1963, issue)

Stagewise calculation methods for multicomponent systems have been extended. An interesting and useful chapter on laboratory and small-scale extraction has been added; experimental and calculation methods are described for batchwise simulation of continuous, countercurrent extraction.

In the chapter on stagewise contact equipment, new correlations on performance and power requirements are given and new equipment developments are discussed. In the chapter on continuous contacting equipment, new correlations of performance and flooding are presented; equipment utilizing mechanical agitation such as rotating agitators and liquid pulsing are discussed. In reporting performance data the author has exercised critical judgment in selecting the material because in the last ten years huge quantities of such data have been reported in the literature.

A new chapter on some aspects of extractor economics has been added. The chapter on liquid-extraction processes has been shortened: flow sheets and detailed process descriptions have been eliminated. A brief survey of the many fields where liquid extraction is now used routinely is presented. As the author points out, when the first edition was published commercial extraction processes were relatively rare; now they are routinely used in all areas of chemical processing. Many volumes could be written in describing details of the many current applications.

The new extraction volume by Professor Treybal is a welcome and valuable addition to chemical engineering literature.

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Analysis of Nonlinear Control Systems, Dunstan Graham and Duane McRuer, Wiley, New York, London (1961). 482 pages. \$9.75.

Although many books dealing with almost every aspect of control systems theory have been published during the last decade, there has been a curious lack of concern by textbook writers for the problems connected with nonlinear control systems. The two or three books that did appear were limited in scope and not very useful as textbooks—at least in the opinion of this reviewer. The present volume has changed this
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