

There are not many elementary textbooks now available that are written on the level of this text, and that includes its range of topics, so it is a worthwhile contribution to the textbook field.

The contention of the authors that selected parts of the text may be used in a short course for sophomores may be questioned.

Topics dealt with are: the balance, practice of gravimetric analysis, gravimetric and volumetric computations, error and the presentation of data, acid-base theory and titrations in aqueous and nonaqueous solutions, volumetric apparatus and techniques, precipitation titrations, electrochemistry, redox determinations, photometric methods, complexation reactions, separations, organic analysis, emission spectroscopy and flame photometry, x-ray methods, kinetics, physical methods, and solving analytical problems.

Appendixes and index are adequate. The binding and printing are good, with very few typographical errors. The writing style is clear, but some of the mathematical presentations are longer than necessary. Illustrations are for the most part good, but some are poorly conceived, like the H_3PO_4 structures on pp. 177-8. References are sparse; about two thirds of the chapters have only a half dozen references or less.

It is difficult to class the quality of a textbook, for what bothers one teacher may not bother others at all. Nevertheless, there are some topics whose presentation could probably be improved. A typical example lies in the presentation of acid-base theory. The authors have written a good chapter on acid-base theory in nonaqueous solutions, including nonaqueous titrations. Such a chapter furnishes an excellent reason for going entirely to Bronsted concepts, yet the treatment of acid-base theory in aqueous solutions (in the preceding chapter) is almost entirely classical. However, there are not enough places like this in the text to constitute a serious deficiency, so it should find wide acceptance among teachers of analytical chemistry.

Standard Methods of Chemical Analysis. 6th ed. Vol. II: Industrial and Natural Products and Noninstrumental Methods. Parts A. B. Frank J. Welcher, editor. xxv + 2613 pages. D. Van Nostrand Co., Inc., 120 Alexander St., Princeton, N. J. 1963. \$25 each part (not sold separately).

Reviewed by F. E. Beamish, De-

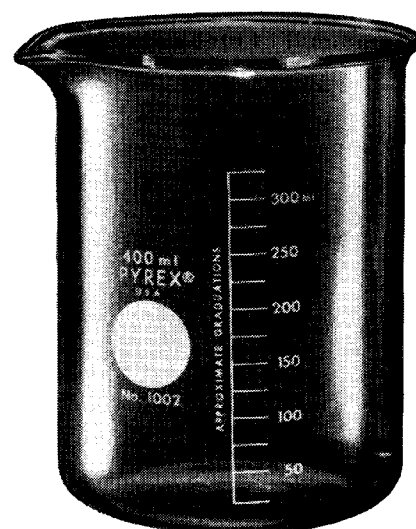
partment of Chemistry, University of Toronto, Toronto 5, Canada

During the past decades, few areas of research have experienced the rapid advances comparable to those associated with quantitative methods of separation and determination. The complexities of the methods, the variety of techniques, and the wide range of applications have presented challenging potentialities, particularly to the analytical researcher with pedagogical interests.

The integration of the improved principles of separation and determination together with the accumulations of new descriptive data provides an opportunity for a demonstration of the effectiveness of analytical chemistry as a teaching science as well as of a field of research. The response by the analytical chemist has been both encouraging and disappointing. In some instances there has been a retreat to the comparative safety of high instrumental specialization, in others, becoming neither fish nor fowl, the analytical chemist has found refuge in the hybrid areas of the physical sciences, which though commendable in themselves will bear the label "analytical" only by virtue of the fact that most good chemical researches are analytical in character. Be this as it may be, the various areas of specialization have brought forth a constant and varied source of analytical tools and procedures for an almost unlimited number of natural and artificial products. From this point of view, the two recent volumes evolved from the Fifth Edition of Scott's "Standard Methods of Chemical Analysis" will prove to be a welcome addition to analytical literature.

The arrangement of this sixth edition is similar to that of the fifth. However, the 50 chapters which appeared in the fifth edition have been rewritten, 46 by other authors. An extensive new section has been added which includes Apparatus, General Operations, and Reagents. Thirteen of the 16 chapters in this section are additions to the content of the fifth edition. These consist of Standard Laboratory Apparatus; Detection of the Cations and Anions; Mechanical Separation; Separation by Precipitation; Separation by Electrolysis; Solvent Extraction; Separations by Distillation and Evaporation; Chromatography; Ion Exchange Methods in Analysis; Final Gravimetric Treatment; Acid-Base Titrations in Nonaqueous Solutions; Statistical Interpretations; and Quantitative Organic Analysis.

Furthermore, 10 new chapters have been added to the section dealing with



*What's your
best buy
in Beakers?*

PYREX® brand beaker No. 1002—for two good reasons: it's stronger, and more versatile. An improved rim and spout plus tighter tolerances on wall thickness and radii make it stronger. Approximate graduations add utility. Now at the same low price as our plain No. 1000 beakers.

Try it. See if you don't agree the 1002 is your best buy in beakers.

You'll find *all* the best buys in the new, blue PYREX brand labware Catalog LG-3. If you don't have a copy, write Laboratory Glassware Dept., 7101 Crystal St., Corning, N. Y.

CORNING
CORNING GLASS WORKS

Circle No. 183 on Readers' Service Card