

# New Books

J.F. Gerecht, Book Review Editor



*Physical Chemistry of Surfaces*, by Arthur W. Adamson (Wiley-Interscience, New York, NY, 1976, 698 p, \$24.95).

The printing of a technical book in a third edition can be viewed in itself as a testimony to the book's success and quality of endurance. "Physical Chemistry of Surfaces," first published in 1960, has come to be known, at least in the United States, as the recognized general text on surface chemistry and a worthy successor to N.K. Adam's classic "The Physics and Chemistry of Surfaces" published in third and final edition in 1941. In the third edition of his book Arthur Adamson has again updated and modified the text. Some idea of the comprehensive coverage and flavor of the book can be obtained from an abbreviated listing (by chapter) of its contents:

- Capillarity (I) and Thermodynamics of Liquid Interfaces (II)
- Surface Films on Liquid Substrates (III)
- Electrical Aspects of Surface Chemistry (IV)
- Surfaces of Solids (V) and Long Range Forces (VI)
- Solid/Liquid Interface—Contact Angle (VII) and Adsorption (IX)
- Nucleation and Crystal Growth (VIII)
- Friction, Lubrication, and Adhesion (X)
- Wetting, Flotation, and Detergency (XI); Emulsions and Foams (XII)
- Solid/Gas Interface—General (XIII) and Adsorption (XIV)
- Chemisorption and Catalysis (XV)

A measure of the evolution of the book can be obtained from a comparison of the latest edition with the original one. Several sections have been reordered and many of the chapters have been expanded and updated. Chapter I, for example, contains a section on capillary waves and wave damping and there is a fuller treatment of films of polymers and materials of biological interest (but very little on the active topic of simulated biological membranes). Chapter V now includes, in addition to scanning electron, field ion, and field emission microscopy, sections on the techniques of low and high energy electron diffraction (LEED and HEED), Auger electron spectroscopy, photoelectron spectroscopy (ESCA) and secondary ion mass spectroscopy (SIMS). One might comment that interest in these techniques is so high that treatment of these topics could have been more elaborate; they are, however, briefly alluded to again in Chapter XV under the subtitle "Chemisorption—The Molecular View." Chapter XIII contains a new section on the use of spectroscopic techniques (including NMR and ESR) to determine the nature of absorbent-adsorbate complexes, and Chapter XIV has an expanded section on adsorption and hysteresis in porous solids and on phase transition in adsorbed films. The topics of Wetting, Detergency, Emulsions and Foams occupy some forty-five pages, constituting, if anything, a slight reduction as compared to the original edition. "Emulsions" now includes a fuller treatment of flocculation kinetics and viscosity, and there is a somewhat modified treatment of drainage phenomena under "Foams." Finally, a pointer to the inclusion of current topics is a brief section in Chapter XI on Tertiary Oil Recovery—oil dewetting and detergency on a massive scale indeed!

In an undertaking as ambitious as the compilation of a book of this dimension it is natural to expect that the

author will give more or less emphasis to particular aspects of the subject overall, and some may question the balance of the book. But this situation is inevitable as all aspects cannot be given full coverage—lest the book become completely unwieldy. The important point is that coverage of virtually all topics in surface chemistry is given; if not always in depth, the book does provide a valuable up-to-date bibliography for detailed reading. It is, in a true sense, a general purpose source and reference book, useful to researcher and student alike (although the mettle of the student will be put to fairly severe testing by the caliber of the chapter-end problems).

I detected scattered, minor errors in content of material drawn from published literature and also quite a number of typographical errors, but these are small matters compared to the overall value of the book. It is safe to say the "Physical Chemistry of Surfaces," already acknowledged as a standard text, will continue to enjoy wide acceptance in the evergrowing field of surface chemistry and its continuously expanding applications.

E.D. GODDARD  
Union Carbide Corp.  
Tarrytown, NY

*Thermal Analysis*, edited by W.W. Wendlandt and L.W. Collins (Halsted Press, New York, NY, 1976, 326 p, \$34).

This volume is not a text on Thermal Analysis but rather a collection of 25 published papers in the field of Differential Thermal Analysis and 11 in Thermogravimetry. These so-called "Benchmark Papers" are simply reproduced and tied together with brief introductory remarks by the editors. With the exception of two selections published by the principal editor himself, all of the papers predate 1965 and are concerned primarily with instrumentation development and evaluation.

Given that the selection of articles is intended to represent the best-known, pioneering publications in Thermal Analysis, one can hardly quarrel with the editor's choices. The compendium includes the papers of Borchardt and Daniels, Boersma, and Freeman and Carroll as well as a translation of LeChatelier's original article. Publications describing prototype models of commercial instruments are also included. In view of the strong current interest in polymer applications of Thermal Analysis, it is surprising that Bacon Ke's early papers in this important field are not represented. With this exception most thermal analysts would agree that the selected articles are representative of the state of the art over the time period covered.

The professional thermal analyst, especially one with an interest in instrumentation, will consider this volume a convenient reference. On the other hand, the modern user of Thermal Analysis as an analytical or characterization tool will find little of direct interest to him in his work-a-day applications of the technique. However, it is useful to note how often the instrumental and interpretive problems which confront the present-day thermal analyst are most clearly and simply discussed in the earliest publications. One is as often impressed with the similarities as with the differences in thermoanalytical practices which have developed over a span of nearly a century.

(Continued on page 341A)

synthetic detergents. These methods have been published in the AOCs Book of Methods and in ASTM.

The committee is continuing work to develop methods for soap and detergent analysis to meet the needs of government and industry. A very definite goal for future work is to coordinate our efforts in method development with ISO TC 91, (International Standards Organization, Technical Committee 91). This effort will save much time and provide a common basis for analytical evaluation of detergents and detergent raw materials traded in international commerce.

The present organization of our committee is as follows: E.A. Setzkorn, chairman, Continental Oil Co., Ponca City, Oklahoma.

Task Group 34, Analysis of Sodium Citrate in Detergents: A.J. Schmitz, Jr., chairman; A.T. Ballum; D.S. Corliss; B. Cohen; H.F. Robinson; R.M. Kelley; E.A. Setzkorn. This TG completed work on a method which was voted for acceptance as a tentative method in 1976. It is therefore anticipated that this TG will be disbanded.

Task Group 35, Analysis of Alpha Olefin Sulfonate: R.D. Gorsich, chairman; G. Battaglini; C.W. Lutz; L. McFarquhar; K. Guin; S.C. Paviak; H. Robinson; E.A. Setzkorn; J.P. Simko; G. Spiegelman. Final drafting of a method is currently in progress in this task group.

Task Group 36, Analysis of CMC in Detergents: J.V. Corbishley, chairman; A.T. Ballum; D. Corliss; R. Kelley, J. Rader; E.A. Setzkorn.

Task Group 37, Analysis of Linear Alkylates Detergent: J. Corinth, chairman; M. Mausner; R. Kelley; D. Lundgren; E. Kaelble; C. Ellis; K. Guin; E.A. Setzkorn.

Task Group 38, Analysis of Nonionic Surfactants: K. Guin, chairman; W. Kraszewski; R. Gorsich; C. Ellis; R. Kelley; R. Lehne; E. Kaelble; A. Russell; D. Lundgren; T. Yu; A. Schmitz; H. Hatcher; J. Crossley; H. Locke; M. Mausner; E.A. Setzkorn.

Additional Members: M. Brungel, T. Campbell, J. Cassidy, R. Davis, J. Diliberto, G. Feighner, H. Gochman, J. Greenberg, E. Holtveg, F. Lense, E. Miller, A. Mankowich, A. Sabia, H. Stupel, J. Taylor, R. Teates. ●

#### ● NEW BOOKS (Continued from page 338A)

Considering that the book is not inexpensive, the quality of the reproduction of the papers is frequently poor, in some cases bordering on illegibility. Sometimes important plates or illustrations are omitted due to procurement or reproduction difficulties forcing the interested reader to refer to the original publication after all. Certainly practicing thermal analysts, particularly those who publish, should be familiar with these milestone papers. Many may find it convenient and economical to have them bound together in a single volume.

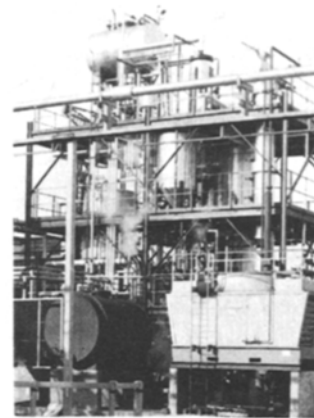
ALLAN P. GRAY  
Perkin Elmer Corp.  
Norwalk, CT

*Treatise on Correlation of Energy Data with Atomic Numbers and the Periodic Table of Elements*, by A. Calderelli (Published by A. Calderelli, Dover, NJ, 1976, 58 p, paperback, no price).

Basically the treatise is an unsuccessful attempt to find better graphical or mathematical representations for chemical periodicity. Thermochemical properties of the elements are related to the atomic numbers. Comparing a large number of numerical data, even if they are systematically organized, is not easy. The author has not found a solution to this problem nor offered a significant contribution to the field of chemical periodicity as has, for example, the book by Sanderson (Reinhold, 1960).

## For complete **FATTY AMINE** Plants

designed and  
built to your  
requirements.



**Peter Jowett & Co. Ltd.**  
CHEMICAL ENGINEERS

Tame Street  
Stalybridge,  
Tameside, England SK15 1QW.  
Phone 061 339 2511 Telex: 669760

also Fatty Acid Hydrogenation  
Edible Oil Hydrogenation  
Fatty Alcohol Manufacture

The book has data compiled from the literature and presented in 15 tables and 16 graphs. The heat of atomization, heat capacity, heat content, standard electromotive force, ionization potential and surface energy are presented for the elements. For simple organic compounds and some inorganic halides and oxides the heats of formation are given. The book has references for the data; however, few original sources are cited and much use is made of handbooks.

This book would be of little use to the typical reader of this journal. Persons specifically interested in locating energy data for the elements might find the references helpful.

E. GORDON MULLER  
Colgate-Palmolive Company  
New York, NY ●

## Obituaries

### Mrs. Sven Young dies

Marian Young, wife of AOCs member Sven E. Young of Toronto, Canada, died unexpectedly on Jan. 16, 1977. Mrs. Young served as Ladies Chairman for the 1962 Fall Meeting in Toronto, at which Dr. Young was general chairman.

### Hans Suter dies

The AOCs has been notified of the death last year of Dr. Hans Suter of Mettler Instrument A.G. in Greifensee-Zurich, Switzerland. Dr. Suter had been a member of the AOCs since 1971.