erence lists, carefully culled for value," the writer's comments are (1) rare and (2) not by my standards.

The book's strong points? It's legible, paper is good quality, and it has more than 70 pages of index.

The book's weak points? As advertised, is not "a fundamental reference" to most "chemical, metallurgical, mechanical, and electronics engineers; physicists and other scientists; and such professionals as materials, product, plant, and design engineers." Its treatment of chemical engineering technology from absorption through water treatment is too elementary. Where it isn't elementary, it tends to be parochial; for example, distillation is treated from the control standpoint which isn't in itself bad, but it doesn't represent the whole subject. Definitely sixth-grade are "Plastics," "Petrochemical Complex," "Process Industries," "Process Plants, Packaged" and others.

As for chemical process technology, it's a question of emphasis. Some thirty or so rather rare elements from actinium through ytterbium are in total number of pages (more than 100) given greater coverage than industrially significant materials such as beer, butadiene, caprolactam, cement, phenol, phenolic resins, polyethylene, polystyrene, PVC, propylene oxide, urea, and zeolites. The reader has probably guessed that this vitriolic review has resulted from the writer finding his favorite subject, "Beer," treated only by six words under the heading "Pasteurization." As for you sophisticates, don't laugh; "Wine" gets the same treatment. And the teetotalers have nothing to be self righteous about; "Ice-cream" is in the same boat. Nitrogen compounds such as amines, amides, imides, amino acids, peptides, proteins, and pyridines are given coverage far out of proportion to the usefulness of the information to technically trained people in industry.

The organization of the subject matter is not what the writer would prefer. Separating Caustic and Chlorine. Rubber and Elastomers, Ethylene Oxide and Ethylene Glycol, Chlorination and Chlorine Organics, Paper and Pulping, Iron, Iron Ore, Iron and Steel, Iron and Steelmaking does not make for one-stop shopping.

Well, as the saying goes, beauty is in the eye of the beholder. Unfortunately, the writer is not sufficiently facile with words to paraphrase this saying so that it applies to reviewing a book, but hopefully, the reader will understand.

C. L. Becker
M. W. Kellogg Co.

Introduction to Organic Electrochemistry: Techniques and Applications In Organic Synthesis, M. R. Rifi and Frank G. Covitz, Marcel Dekker, New York (1974). VIII, 417 pages. $26.50.

This book is important for those interested in the electrochemical approach to making synthetic organic chemicals. It is a How-To-Do-It book, written by men well versed in the practice of what they teach, and an up-to-date Baedeker of the published literature on electro-organic chemistry. Aside from M. J. Allen's vestpocket sized *Organic Electrode Processes* (Rheinhold, New York, 1950), this is the first attempt to bring all the separate but relevant disciplines into unified focus and to forge the chain that is needed to proceed from an idea to an industrially viable process. The emphasis is on experimental techniques rather than electrochemical engineering, although the latter is by no means ignored.

Chapter 2 on Basic Principles is a gem. Not only are the formal aspects of the science clearly presented (an achievement, as regards electrode kinetics), but the effects of less publicized variables (agitation, leakage, additives, etc.) are clearly explained. Also, how controlled potential electrolysis, useful in sharpening selectivity of products in batch electrolysis, has to be abandoned in continuous, steady state electrolysis, where selectivity may be controlled by degree of conversion.

Chapter 3, on Apparatus and Techniques, is replete with detailed descriptions, diagrams, and even lists of supply houses where special equipment may be purchased. Special attention is given to materials of construction, selections of solvent and electrolyte, instrumentation, and the various kinds of voltammetry that are used to unravel electrode mechanisms. The practical problems of scale-up are nicely discussed.

The next two chapters are for the organic chemists. His reagents are electrons (as chemicals go, they are cheap, indeed). Chapter 4 deals with electron addition, that is, reduction at a cathode.

Chapter 5, deals with electron abstraction, that is, oxidation at an anode. The various kinds of oxidations that can be performed include the Kolbe reaction, oxidation of unsaturated compounds, anodic halogenation, and other miscellany.

The authors deserve kudos for including Chapter 6, Electroinitiated polymerization, and Chapter 7, Electrocoating, both of which are new and fast moving developments in the applied plastics industry. They, too, have made substantial contributions in these fields.

Another unique feature of this book is Appendix A, Questions and Answers (over 30 pages). This reviewer read the book first, with interest and pleasure. He then went through the Q and A bit, for a second helping of the same lively fare.

Appendix B, Glossary of terms, is very lucid, and Appendix C, Charts of Electrode Potentials, is obviously useful.

This book has an excellent author and subject index. The text is remarkably free from technical and typographical errors.

R. B. MacMullin
Associate Emeritus, RBMA
Fellow, AIChE
Member Emeritus, ESC

ERRATA

In "Prediction of Diffusion Coefficients for Nonelectrolytes in Dilute Aqueous Solutions" by W. Hayduk and H. Laudie [**20**, 611 (1974)], the exponent for viscosity in Equation (4) was incorrectly printed as 1.4. Equation (4) should read:

$$D_{12} \frac{13.26(10^{-5})}{\mu_2^{1.14}\, V_1^{0.589}} \qquad (4)$$

W. Hayduk

In "Pressure Drop and Holdup in Stratified Two-Phase Flow" by T. W. F. Russell, A. W. Etchells, R. H. Jensen, and P. J. Arruda [**20**, 664 (1974)], the second line of Equation (20) on page 666 should read:

$$+ \frac{H_A}{C_B D} (6\alpha - 2\alpha^3 - 6\beta \sin^{-1} \alpha) \qquad (22)$$

A. W. Etchells

In "Gas Absorption by Non-Newtonian Liquids in Agitated Vessels" by J. F. Perez and O. C. Sandall [**20**, 770 (1974)], the figures and figure titles do not agree. The figure titles are in the proper order and the corrected figure order should be: 2, 4, 5, 1, 3.

Orville C. Sandall

In "Computation of Vapor Liquid Equilibria for Hydrogen and Light Hydrocarbon Systems" by S. P. Singh and P. K. Mukhopadhyay [**18**, 1171 (1972)] the following changes should be made:

1. Equation (19) is valid only up to $R = 2.4$. For $R > 2.4$, $l_{12}/P_a = 0.01$.
2. The ordinate on Figure 2 should be l_{12}/P_a.
3. In Equation (20), T is in °R.
4. Equations (21) and (22) yield only approximate values of P_a and T_a. For the estimation of phase equilibria, the P_a and T_a values in Tables 1 and 2 on page 1246 should be used.

P. K. Mukhopadhyay

(Continued on page 1246)

ERRATA *(Continued)*

TABLE 1. BINARY PARAMETER P_a

	Heptane	Hexane	Pentane	*I*-Pentane	Butane	Butene	*I*-Butane	Propane	Propene	Ethane	Ethene	Methane	Nitrogen	Hydrogen
Heptane	0.0	0.00001	0.00016	0.00100	0.00200	0.00360	0.00420	0.02100	0.03100	0.09100	0.18000	1.00000	7.81700	13.00000
Hexane	0.00001	0.0	0.00024	0.00160	0.00280	0.00520	0.00600	0.02700	0.06500	0.14000	0.28000	1.58900	11.07000	16.23999
Pentane	0.00016	0.00024	0.0	0.00250	0.00390	0.00720	0.00820	0.03100	0.12500	0.21000	0.40000	2.05700	15.00000	20.00000
I-Pentane	0.00100	0.00160	0.00250	0.0	0.00500	0.00920	0.01050	0.04100	0.21000	0.28000	0.52000	2.60000	19.00000	23.00000
Butane	0.00200	0.00280	0.00390	0.00500	0.0	0.01000	0.01150	0.04500	0.28700	0.32000	0.60000	2.75500	21.54999	24.00000
Butene	0.00360	0.00520	0.00720	0.00920	0.01000	0.0	0.01250	0.04500	0.30000	0.36000	0.64000	3.10000	21.79999	24.29999
I-Butane	0.00420	0.00600	0.00820	0.01050	0.01150	0.01250	0.0	0.04600	0.31000	0.37000	0.66000	3.20000	22.00000	24.50000
Propane	0.02100	0.02700	0.03100	0.04100	0.04500	0.04500	0.04600	0.0	0.44600	0.40200	0.92000	3.89100	23.50000	26.00000
Propene	0.03100	0.06500	0.12500	0.21000	0.28700	0.30000	0.31000	0.44600	0.0	0.66900	1.00000	4.50300	24.00000	27.00000
Ethane	0.09100	0.14000	0.21000	0.28000	0.32000	0.36000	0.37000	0.40200	0.66900	0.0	1.09800	5.02000	26.00999	28.00000
Ethene	0.18000	0.28000	0.40000	0.52000	0.60000	0.64000	0.66000	0.92000	1.00000	1.09800	0.0	5.53200	26.29999	39.62299
Methane	1.00000	1.58900	2.05700	2.60000	2.75500	3.10000	3.20000	3.89100	4.50300	5.02000	5.53200	0.0	27.49100	29.08099
Nitrogen	7.81700	11.07000	15.00000	19.00000	21.54999	21.79999	22.00000	23.50000	24.00000	26.00999	26.29999	27.49100	0.0	31.00000
Hydrogen	13.00000	16.23999	20.00000	23.00000	24.00000	24.29999	24.50000	26.00000	27.00000	28.00000	39.62299	29.08099	31.00000	0.0

TABLE 2. BINARY PARAMETER T_a

	Heptane	Hexane	Pentane	*I*-Pentane	Butane	Butene	*I*-Butane	Propane	Propene	Ethane	Ethene	Methane	Nitrogen	Hydrogen
Heptane	0.0	900.0	880.0	880.0	855.0	972.0	966.0	1,155.0	1,054.0	919.0	936.0	973.0	1,089.0	988.0
Hexane	900.0	0.0	910.0	900.0	868.0	1,014.0	1,020.0	1,026.0	1,138.0	924.0	1,036.0	983.0	726.0	1,020.0
Pentane	880.0	910.0	0.0	950.0	897.0	1,008.0	1,025.0	799.0	1,188.0	945.0	1,040.0	983.0	840.0	980.0
I-Pentane	880.0	900.0	950.0	0.0	900.0	1,058.0	1,029.0	820.0	1,260.0	896.0	1,014.0	988.0	950.0	943.0
Butane	855.0	868.0	897.0	900.0	0.0	1,000.0	1,035.0	795.0	1,236.0	911.0	1,050.0	975.0	1,103.0	960.0
Butene	972.0	1,014.0	1,008.0	1,058.0	1,000.0	0.0	1,063.0	743.0	1,260.0	936.0	1,056.0	992.0	1,003.0	938.0
I-Butane	966.0	1,020.0	1,025.0	1,029.0	1,035.0	1,063.0	0.0	736.0	1,271.0	944.0	1,056.0	992.0	990.0	931.0
Propane	1,155.0	1,026.0	799.0	820.0	795.0	743.0	736.0	0.0	1,254.0	905.0	1,104.0	980.0	964.0	858.0
Propene	1,054.0	1,138.0	1,188.0	1,260.0	1,236.0	1,260.0	1,271.0	1,254.0	0.0	961.0	1,062.0	985.0	936.0	837.0
Ethane	919.0	924.0	945.0	896.0	911.0	936.0	944.0	905.0	961.0	0.0	1,029.0	911.0	895.0	765.0
Ethene	936.0	1,036.0	1,040.0	1,014.0	1,050.0	1,056.0	1,056.0	1,104.0	1,062.0	1,029.0	0.0	886.0	868.0	860.0
Methane	973.0	983.0	983.0	988.0	975.0	992.0	992.0	980.0	985.0	911.0	886.0	0.0	705.0	610.0
Nitrogen	1,089.0	726.0	840.0	950.0	1,103.0	1,003.0	990.0	964.0	936.0	895.0	868.0	705.0	0.0	635.0
Hydrogen	988.0	1,020.0	980.0	943.0	960.0	938.0	931.0	858.0	837.0	765.0	860.0	610.0	635.0	0.0