contributions to the theory of electron transfer reactions in chemical systems) suggests that a more balanced view would have been possible.

Volume 2B: Electrodics in Chemistry, Engineering, Biology and Environmental Science

And so to Volume 2B, the third book in this ambitious trilogy. Here the standard is patchy. Chapter 1, which purports to deal with photoelectrochemistry is particularly poor. There are several excellent text books on semiconductor electrochemistry, notably those by Morrison (5) and by Pleskov and Gurevich (6). Even Bard and Faulkner give a reasonable summary (7). By contrast, Chapter 1 is an odd mixture of experimental results and misleading theory. The peculiar expression for the photocurrent efficiency is incorrect, and the treatment of photocurrent voltage characteristics ignores half a decade of research.

A brief survey of 'organoelectrochemistry' follows. This omnibus title extends beyond electrode reactions involving organic molecules to consider topics such as conducting polymers. The award in 2000 of the Nobel Prize in Chemistry to Heeger, MacDiarmid and Shirakawa (conducting polymers) was a clear recognition of the maturity of the chemistry and physics of conducting polymers. However, this chapter does not do justice to the state of knowledge about these materials; for example, the use of 'semiconductor' models to describe the behaviour of the non-conducting state is deeply misleading.

After this unpromising start, the third volume improves substantially with good solid sections on corrosion, fuel cells and batteries. (One feels that the authors are more at home here.) The book concludes with sections on bioelectrochemistry and environmental electrochemistry, both topics that are centre stage in terms of potential applications in the 21st century.

In summary, these are three very reasonably priced volumes, with a total of over 2000 pages of text, which profess to comprise an undergraduate text. It is clear from the preface that the authors originally set out to write a comprehensive text book. In my view, what they have actually produced is rather different: something more like "A Treasury of Electrochemistry" – the sort of compendium that Victorians were fond of giving to their relatives for Christmas. At times the text is inspirational and notable for its depth of insight, at other times it is irritatingly lacking in presentational quality and balance. This is a text then with many strengths and many weaknesses; one that is suitable for a mature audience which knows when to take things *cum grano salis*, as my mentor, Heinz Gerischer, liked to say. Nevertheless, I found large parts of it a cracking good read, which is more than can be said for most text books.

References

1 J. O'M. Bockris and A. K. N. Reddy, "Modern Electrochemistry", in 2 vols., Plenum Press, New York, 1970 (hardback), 1973 (paperback)

2 P. J. Delahay, "Double Layer and Electrode Kinetics", Interscience Publishers, New York, 1965

3 P. J. Delahay and C. N. Reilley, "New Instrumental Methods in Electrochemistry", Interscience Publishers, New York, 1954

4 R. P. Feynman, R. B. Leighton and M. Sands, "The Feynman Lectures on Physics", in 3 vols., Addison-Wesley Publishing Co., Reading, Mass., 1964

5 S. R. Morrison, "Electrochemistry at Semiconductor and Oxidized Metal Electrodes", Plenum Press, New York, 1980

6 Yu. V. Pleskov and Ya. Gurevich, "Semiconductor Photoelectrochemistry", Consultants Bureau, New York, 1986

7 A. J. Bard and L. R. Faulkner, "Electrochemical Methods", 2nd Edn., Wiley, New York, 2000

L. M. PETER

The Author

Laurence Peter is Professor of Physical Chemistry at the University of Bath, U.K. His main interests are currently in semiconductor electrochemistry and photoelectrochemistry, including novel solar cells.

Platinum Metals Geoscience Publication

Special Volume 54, from the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), on "The Geology, Geochemistry, Mineralogy and Mineral Beneficiation of Platinum-Group Elements" will be published in Spring 2002.

This sequel, to Special Volume 23 published in 1981, contains new information on pge deposits worldwide in terms of geological setting, ore controls, mineralogy, geochemistry, mineral processing and beneficiation. The book can be ordered from CIM, 1210–3400 de Maisonneuve Blvd. W., Montréal, Québec, Canada, H3Z 3B8; Fax: (514) 939 2714. Website: http://www.cim.org/geosoc/SV_54_Form.pdf (prepublication prices until March 31st).