*Journal of Applied Electrochemistry* **30**: 1191, 2000.



*Book review*

P.K. Datta and J.S. Burnell-Gray
**Advances in Surface Engineering (Volumes I, II and III).**
*Royal Society of Chemistry (1997).*
*Price of each volume £69.50*
*ISBN 0-85404-747-6; 0-85404-752-2; 0-85404-757-3*

This three volume publication forms the Proceedings of the 4th International Conference on Advances in Surface Engineering which was held at the University of Northumbria's Surface Engineering Research Group, 14–17 May 1996.

Volume I (338 pages) concerns the Fundamentals of Coatings. The 27 papers are divided into sections on High Temperature Corrosion, Aqueous Corrosion, Wear and Fatigue/Other Failure. While the aqueous corrosion papers are the most relevant to electrochemists, other useful contributions in this volume include ones on high temperature corrosion of electroless nickel coatings and the erosion resistance of electroplated chromium.

The second volume (336 pages) provides 26 papers on PVD and CVD deposition methods, thermal, plasma, weld and detonation coatings, laser techniques, shot peening and electrochemical deposition strategies. This volume deserves to be read by electrochemistrs interested in metal finishing an surface coatings as it provides a convenient collection of papers across the boundaries of deposition techniques, physical and chemical properties of surfaces and the industrial applications of many surface finishing approaches.

Volume III (416 pages) considers Engineering Applications in the form of 26 papers in diverse areas of industry, such as biomedical implants, aerospace, automotive, cutting tool, power generation and marine sectors. Vacuum spectroscopy techniques sit alongside classical mechanical testing.

The books are well illustrated by data plots, line drawings and micrographs of engineering surfaces. The material provides a useful compilation across the fields of electrochemical, thermal, mechanical and gas-phase coatings and surface treatment techniques. The emphasis is on practical/industrially useful surfaces in the engineering industries although ther is much useful material on emerging techniques (e.g., laser treatment strategies and the use of numerical modelling for the prediction of surface characteristics.

The material should prove useful to materials scientists, coatings technologists and production engineers in addition to applied electrochemists. The books have found their way into our Applied Electrochemistry group and should prove informative for projects in the areas of electroplating, electroless plating, composite coatings and corrosion resistance. It is rare that a single book or series of books based on a conference proves to be of such widespread use by postgraduate and post-doctoral workers.

*Frank Walsh*
*University of Portsmouth*