with years of experience 'in the business' can do this, and we—the readers and the continuing practitioners—can benefit greatly as a result.

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## Imaging of Surfaces and Interfaces

J. L. Lipkowski and P. N. Ross (eds)
John Wiley & Sons New York, 1999
x + 342 pages. £93.95
ISBN 0-471-24672-7

This book represents a further volume in a series of books on *Frontiers of Electrochemistry*. It describes various aspects of crystal growth, the formation of organic adlayers and films and the imaging of electrochemical adlayers. The title itself is somewhat misleading as it implies that the book describes imaging at all surfaces and interfaces, when in fact it almost exclusively describes theory and experimental investigations of electrochemical surfaces and interfaces.

The order in which the chapters are arranged sometimes seems rather odd; for example, Chapters 1 and 3 would seem to go well together as they describe crystal growth and electrodeposition in the high- (Chapter 3) and low- (Chapter 1) resolution regimes. Both use scanning tunnelling microscopy (STM) and atomic force microscopy (AFM) to investigate crystal growth processes at electrode surfaces. Both chapters are well illustrated and Chapter 3 contains some beautiful colour plates.

The word 'imaging' in the book title suggests that mainly scanning probe investigations of electrode surfaces will be described, and for the most part this is true. Chapter 2, however, provides an excellent description of electron diffraction techniques which can be used to investigate the surface structure of electrodes. Although these are *ex situ* UHV techniques, the authors show that there is still a place for such investigations in a thorough study of an electrochemical surface.

Chapter 4 describes the imaging of reaction fronts at surfaces and interfaces. It is well written, and contains some fine pictures of spiral reaction fronts. Part of the content of this chapter, however, seems rather out of place. For example, around a half of the description of experimental results is devoted to imaging reaction fronts on single-crystal surfaces, particularly the CO oxidation reaction on Pt surfaces (although this is very interesting). Chapters 5 and 6 seem to overlap a little, but this is generally inevitable in a book of this type. Both talk about the formation, ordering and imaging of organic adlayers and thin films on electrode surfaces.

The final chapter of the book describes some of the theoretical aspects of performing STM experiments in an electrochemical environment. In particular it looks at tunnelling processes that can occur in an electrochemical medium in comparison with those in vacuum, and focuses on how the solvent, especially water, facilitates electron tunnelling. It is a very well-written chapter and, despite being theoretical, is easily accessible to any reader. My only criticism is that I felt the chapter should have been placed earlier in the book.

My main criticisms of the book as a whole are that there are many typographical errors (especially in Chapter 1) and some Figures are not labelled with enough information. Some figures are also incorrectly labelled. In addition, the use of acronyms throughout the book is not consistent; for example, Chapter 6 refers to atomic force microscopy (AFM) as scanning force microscopy (SFM). In summary, I found this book very informative and easily accessible to the nonspecialist in this field.

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## Metals and the Skin: Topical Effects and Systemic Absorption

R. H. Guy, J. J. Hostýnek, R. S. Hinz and C. R. Lorence
Marcel Dekker, New York, 1999
431 pages. $185
ISBN 0-8247-9385-4

In a society that is becoming ever more industrialized it is becoming increasingly important to understand the effect of the multitude of compounds to which it is possible to be exposed, either in the workplace or from the surrounding environment. This book is therefore a timely overview of the interactions of metals and metal-based compounds with the skin, specifically detailing quantitative analysis of permeability and transport in a comparable form. It is a valuable source of references to published investigations in this area which the authors have considered particularly relevant to human health and safety. Where possible they have presented estimated values of a permeability coefficient for the metal under discussion, selected as a parameter for comparison of percutaneous flux. In addition, data identified as useful for the estimation of skin absorption have been presented for the purposes of risk assessments.

Metals and metal compounds hold a unique place in their interactions with man. The role of some metals as essential elements has long since been recognized, as indeed have the therapeutic benefits of many metals and metal compounds, an area that continues to be exploited and researched today. Conversely, with the ever-advancing understanding of toxicology, the hazards associated with exposure to certain metals are becoming more apparent. The discovery of the immunogenic nature of mercury 100 years ago and more recent recognition of the hypersensitivity of some individuals to certain metals