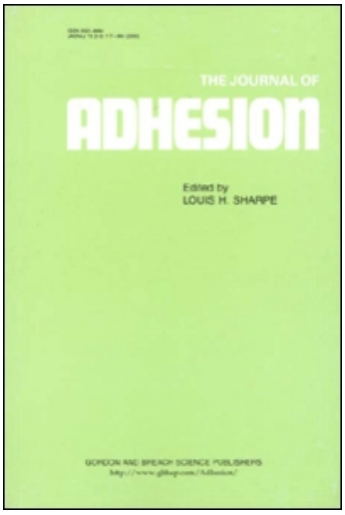
This article was downloaded by:
On: *22 January 2011*
Access details: *Access Details: Free Access*
Publisher *Taylor & Francis*
Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



The Journal of Adhesion
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713453635

Book Reviews

K. W. Allen[a]; J. J. Bikerman
[a] The City University, London

To cite this Article Allen, K. W. and Bikerman, J. J.(1976) 'Book Reviews', The Journal of Adhesion, 7: 4, 351 — 352
To link to this Article: DOI: 10.1080/00218467608075065
URL: http://dx.doi.org/10.1080/00218467608075065

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

J. Adhesion, 1976, Vol. 7, pp. 351–352
© 1976 Gordon and Breach Science Publishers Ltd.
Printed in Scotland

Book Reviews

MODERN PHYSICAL TECHNIQUES IN MATERIALS TECHNOLOGY, edited by T. Mulvey and R. K. Webster. Oxford University Press, 1974. xiv+321 pp. (£9.50)

It is frequently asserted that adhesion science is interdisciplinary, and certainly it demands of its exponents and practitioners a particularly wide range of skills and understanding. Within it one may be discussing perhaps the configuration and synthesis of a polymer to be used as an adhesive—essentially the work of an organic chemist—or the distribution of stress within a bonded joint—essentially the domain of a mechanical engineer—or the forces acting across an interface between adhesive and adherend—essentially the field of a physical chemist. However in any real problem of adhesion one is inevitably led to a consideration of surfaces and their nature; either they are to be bonded or else have been bonded and separated.

Within the last decade the range of techniques available for studying materials generally and surfaces particularly has increased remarkably and one is hard put to it to keep up. This particular volume goes a very long way to resolving this and enabling poor Jack if not to become "a master of all trades" at least to understand what are available and the potential and limitations of each.

The twenty chapters, by nineteen specialist authors, are broadly arranged to consider diffraction methods, microscopic and electron beam techniques and spectroscopic studies; each one (except the first on crystallography and diffraction) dealing with one technique or particular aspect of a technique. Each gives an introduction to the basic theory of the method followed by an outline of the instruments involved and a consideration of applications and finally a brief bibliography mainly to monographs. Thus one may, for instance, thinking of Auger Spectroscopy turn to the appropriate chapter and within a reasonably short compass ascertain whether it is likely to be useful in resolving a particular problem both in the light of its basic principles and its previous applications. Then if it is promising, one is led at once to the authoritative sources for further reading.

If one is to criticize, it is that each of the expert authors has just slightly overestimated the initial level of knowledge and understanding of their

Downloaded At: 16:57 22 January 2011

audience. Each might with advantage have started by assuming a greater ignorance and written their opening paragraphs in wider and less specialized terms.

The book is, as one would naturally assume from its publisher, excellently produced; well printed on good paper and with fine illustrations both line drawings and half-tone plates.

It is undoubtedly worth a place on the bookshelf of every adhesion scientist.

K. W. ALLEN
The City University
London

METHODS OF DETERMINING MECHANICAL AND ADHESION PROPERTIES OF POLYMER COATINGS (Russian) by A. T. Sanzharovskii. Nauka Publ., Moscow, 1974. 115 pp. (Rub. 0.34).

Downloaded At: 16:57 22 January 2011

This little paperback (20 × 12 cm) contains, above all, descriptions of the instruments designed and used in the Department of Polymer Coatings, Institute of Physical Chemistry of the Academy of Sciences, Moscow. The first chapter deals with the internal stresses and includes a review of some Russian and foreign publications. The author's apparatus uses the curling of a ribbon coated on one side only as the measure of the shrinkage stresses caused by the setting of the polymer. The relevant equations are (unconvincingly) derived as new, although they have been known for many years for bimetal ribbons, electrodeposits, and so on. Still, data on frozen stresses in various coatings make this chapter valuable.

The short chapter on strength properties contains the interesting information that a free film and three identical films adhering to different substrates (so that their peeling tensions were different) proved to have identical tensile strengths. The chapter on elastic deformations is the shortest of all. In Chapter 4, the instruments for measuring heat expansion, shrinkage on heating and the heat conductivity are presented.

Chapter 5 on the "adhesion strength" is the longest in the book, ought to be of particular interest to the readers of this journal but appears the least satisfactory to this reviewer. Unfortunately, the author is not aware of the advances, made in the last 35 years, in our understanding of the stress distribution in adhesive joints; consequently, his qualitative or semi-quantitative comments on these stresses are out-of-date. Nevertheless, some experimental results in this chapter deserve to be known.

Of the 111 references in the bibliography only 14 are to non-Russian publications.

J. J. BIKERMAN