The book will be of value to all who are interested in what is presently being done in this area of research. Owing to the large number of invited papers (25), which have more of a review nature, the book will also be of some interest to non-specialists and students.

ARTHUR H. MILLHOUSE

Hahn-Meitner Institut
D-1000 Berlin 39
Federal Republic of Germany

Acta Cryst. (1981). A**37**, 143

Physics and mechanics of ice. (International Union of Theoretical & Applied Mechanics Symposium, Copenhagen, 1979.) Edited by P. TRYDE. Pp. xiv + 378. Berlin: Springer-Verlag, 1980. Price DM 74.00, US $43.70.

Ocean engineering has advanced rapidly in the last two decades, and in high latitudes, where the floating ice cover is generally a major hazard, extensive investigation and detailed analysis have cleverly turned the sea ice to advantage as loading and drilling platforms. This collection of papers, focused on big-scale ice engineering, is a reference text.

The mathematical and physical modelling cannot be spelled out in limited length papers, so some are rather difficult to comprehend, but the problems tackled range from crystal boundary cracking in ice creep to the design of the Danish icebreaker. Better to understand some of the papers, the reader should begin with more comprehensive texts such as Patterson (1968), *The Physics of Glaciers*, or Hobbs (1973), *Ice Physics*. A paper by Mellor gives a scholarly synopsis of current knowledge of snow and ice and Assur discusses the state of the science and current problems, but 15 of the 25 papers concentrate upon extensive ice plates a few metres thick. Four are relevant to glaciers, three to ships in ice, one to iceberg dodging and one to ice as a support in rock wall mining.

Impurities, even in very low concentration, weaken fresh-water ice, but sodium salts have been found to strengthen the single ice crystal. Little of this is amplified in the papers and in some the type of ice considered is not detailed. Glaciologists have done little on ice flow at low stresses so some papers break new ground in this. Miller, and also Goodman, give results illuminating the recent material parameter of fracture toughness and the critical stress intensity required to propagate a crack, which is a function of the strain energy release rate. Most of the workers are in North America, but European and Japanese workers have contributed from laboratory and field observations. There is a summary, at the end, of questions and answers. The book is a healthy collection of views and aims in the applied science of ice, and the editor and organising committee are to be congratulated.

H. LISTER

Department of Geography
University of Newcastle upon Tyne
Newcastle NE1 7RU
England

Acta Cryst. (1981). A**37**, 143

Dislocations in solids. Vol. 1. The elastic theory. Edited by F. R. N. NABARRO. Pp. xx + 364. Amsterdam, New York, Oxford: North-Holland, 1979. Price Dfl 125.00, US$61.00.

This first volume of a set of five contains five totally independent articles, each with its own title, contents pages and list of references. Only the author and subject indexes and the editor's fifteen-line preface are shared by the various articles. This review is accordingly broken into sections, reflecting the very fragmented nature of the book.

The introduction by J. Friedel is well illustrated and non-mathematical. The treatment is nonetheless reasonably advanced, including some discussion of dislocations as solitons. The reference list is curiously (and unnecessarily) split into a list for section 1 and a list for the remaining sections.

A. M. Kosevich discusses crystal dislocations and the theory of elasticity in a useful, detailed discussion containing 281 equations: it is unfortunate that the addendum sections, dated 1976, could not have been inserted after the appropriate sections of each chapter, in view of the 1979 publication date.

J. W. Steeds and J. R. Willis very briefly discuss dislocations in anisotropic media: I found their table of analytic solutions, with examples of real crystals, rather interesting and worthy of extension.

J. D. Eshelby provides a useful chapter on boundary problems, and the final chapter by B. K. D. Gairola concerns non linear elastic problems, which is complicated by the use of inappropriate vector formulae and differential operators which act on the preceding rather than the succeeding quantity. The author does, however, provide alternative precise tensor formulations for each vector equation and an appendix on tensor theory, which is not the best I have seen. Both of these articles have 1976 addenda.

Technically, the book is well produced and attractively type-set. My overall impression is that the book makes a worthwhile contribution to our overview of the subject and makes a good start to a series which subscribers may purchase at a 15% discount on the total price of Dfl 790.

L. L. BOYLE

University Chemical Laboratory
Canterbury
Kent CT2 7NH
England

Acta Cryst. (1981). A**37**, 143–144

Introduction to solid state electronics. By F. F. Y. WANG. Pp. xii + 266. Amsterdam: North-Holland, 1980. Price US $23.75, Dfl 48.50.

This is a brief textbook on an important, fast-moving subject, well printed and bound. The mathematics is treated briefly and yet thoroughly. Unfortunately, careful examination shows this to be a very poor undergraduate text. The *Table of contents* shows that it does not cover the material suggested by the title. It is really an introduction to