

defects or thermal expansion) to be absorbed into the geometrical description. In chapter 3 the theory is linearized.

The fourth chapter is concerned with variational methods. Here and elsewhere in the book the author uses the mechanics of special relativity. In the final chapter he quantizes the dislocation field. The reader may be surprised to find dislocation theory handled in terms of relativity and quantum mechanics, but the author makes his point of view clear in the preface: 'Thus, for example, the frequency of acoustic waves may be comparable with the rate (frequency) of change of the dislocation density, and then one must use relativistic equations of motion. The radioactive method of measurement may change the density of (mobile) dislocations, and so it is essential to use the equations of quantum mechanics in order to determine the possible percentage errors'.

It is clear that we are here in a world quite different from that studied by most dislocation theorists. One is reminded of attempts to treat elementary particles as dislocations in space-time, and, indeed, the author's work may find an application in this field.

In the last two chapters the author treats the motion of dislocations and extra matter without interaction with each other or the elastic field. This rules out application to most of the interesting problems: plasticity, interaction of dislocations with phonons or point defects and so forth. But, says the author, to include these interactions it is only necessary to insert extra terms in the Lagrangian. For a realistic theory one would also have to allow for the interaction of dislocations and extra matter with the crystal lattice.

It should be clear from what has been said that this is not a suitable introduction for someone who wishes to study the mathematical side of the theory of dislocations as it is expounded in, for example, the treatises of Friedel, Nabarro, and Hirth & Lothe, or the Handbuch article by Seeger. Neither can it be recommended as a first introduction to the continuum theory of dislocations, for though the author acknowledges the work of the British, German and Japanese schools he does not attempt to relate their treatment with his own, nor does he supply references which would enable the reader to do this for himself. Indeed, apart from the citation of standard works on tensor analysis, elasticity and field theory there are only four references, one to an unpublished paper, two to the Warsaw school and one to the German. However, as an extended and highly individual essay on the abstract theory of

dislocations the book will interest connoisseurs of the subject.

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**Selected topics in structure chemistry. A collection of papers dedicated to Professor Odd Hassel on his 70th birthday, 17 May 1967.** Edited by PER ANDERSEN, OTTO BASTIANSEN and SVEN FURBERG. Pp. 307. Oslo: Universitetsforlaget, 1967. Price N. kr. 68.00.

This *Festschrift* is dedicated to Professor Hassel, the eminent Norwegian chemist, by his scientific children and grandchildren. It contains fifteen original papers on various aspects of structural chemistry and a complete bibliography of 220 papers by Hassel, which commences with the publication of his graduation thesis of 1922.

P. Andersen and O. Bastiansen introduce the volume with a dedication *Odd Hassel*. E. W. Lund and C. Rømming in the chapter *Forty five years of achievement* vividly present the scientific career of Professor Hassel, his great contributions to many fields of chemistry over more than 45 years and the influence he exerted on a large group of younger chemists in Norway.

The research papers reflect Professor Hassel's major interests in structural chemistry: Gas electron diffraction (six papers on the theory and on structural problems) and X-ray structure determination (five papers, again treating both experimental and theoretical problems). The last group of four papers is concerned with various methods and chemical problems.

Even though the publications in this volume are collected for a special occasion, their high level make the book stimulating reading for chemists, crystallographers and, of course, for every friend of Odd Hassel.

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