

The extent to which the method has been applied in mineral structures is rather limited as yet, probably because it is most powerful in dealing with structures (mainly organic) in which large molecules make up a substantial part of the whole. Special problems like those of chrysotile and klockmannite have, however, been dealt with, and one wonders to what extent the transforms of silicate structural units (tetrahedra, octahedra, and various rings, chains, and sheets of the latter fragments) might be usefully studied by the optical method.

The book is well produced, with few errors, and it contains many illustrations of optical transforms, which are at the same time instructive and fascinating.

J. ZUSSMAN

SEEGER (A.), editor. *Moderne Probleme der Metallphysik*. Vol. I. *Defects, Plasticity, Radiation Damage and Electron theory*. Berlin (Springer-Verlag), 1965, xvi+445 pp., 192 figs. DM. 59.

This volume consists of six chapters dealing respectively with Dislocation theory (Kröner), Plastic Deformation of Single Crystals (Berner and Kronmüller), Theory of Plastic Deformation (Kronmüller), Electron Microscopy of Defects (Mader), Radiation Damage (Diehl), and Electron Theory of Metals (Bross). The object of the articles is to bring the reader up to date with recent developments in these various subjects. In fact, however, the reviews deal in detail in the main only with the contributions made by the Stuttgart group, particularly in the field of defects and plasticity of crystals. The book will therefore find most use as a convenient compendium of recent work and ideas due to that particular school.

In the chapters on plasticity, the reader is given the impression that as regards the Stuttgart theory, 'alles ist in bester Ordnung', which is somewhat misleading. Thus an elaborate treatment is presented to show that the density of 'forest' dislocations in stage II of the hardening curve of copper single crystals is $\frac{1}{10}$ or $\frac{1}{8}$ of that of the primary dislocations, whereas electron microscope observations have in fact shown these densities to be of the same order. It is also unfortunate that the error in the treatment of the flow stress due to the long range stress from pile-ups (which has been discussed by the reviewer at the 1964 Göttingen meeting of the Faraday Society) is again repeated. It is a pity that the opportunity was not taken to present a really critical account of the current state of the subject.

P. B. HIRSCH