or spelling (mole, gm, sec) and duplicate use of symbols
(X for coordinate and mol fraction, P for vapour pressure
and probability of formation). As is quite common among
US authors, far too little reference is given to European
researchers. Even in an introductory text authors who have
made outstanding contributions to the subject should not
be missing (in the present case inter alia Stranski, Budevski,
Kaishev, Hartman).

The book provides interesting reading, is well illustrated,
and the quality of printing and binding is excellent. It can
truly be recommended.

HEIKO K. CAMMENGA

Institut für Physikalische und Theoretische Chemie
der Technischen Universität
Hans-Sommer-Strasse 10
D-3300 Braunschweig
Federal Republic of Germany


One of the less spectacular but nevertheless significant
events of the year 1984 was the fiftieth anniversary of the
recognition of the dislocation as the ‘carrier’ of plastic
deformation in crystals. In 1934 Orowan, Polanyi and Tay-
lor introduced the first correct models to account for the
plastic properties of crystalline materials. The anniversary
was marked by a number of conferences where pioneers
and younger disciples of the field met in varying composi-
tion to ‘celebrate’, i.e. to present papers.

The Yamada Science Foundation has been a very active
sponsor of international meetings in recent years. Topics
and invited lectures are always very well selected, and the
high standards of these conferences have found worldwide
recognition. The ninth Yamada Conference, on ‘Disloca-
tions in Solids’, was held in August 1984 in Tokyo. It was
organized by the editors of these conference proceedings.
Following the general routine pattern, camera-ready texts
of 146 papers are presented in about 670 pages. There is
an index of authors, which includes many of the leading
experts in the field, but no attempt has been made to provide
some guidance through the immense amount of information
by a subject index.

The papers are generally of high quality and show that
the refereeing process was taken seriously. The nine invited
papers (F. R. N. Nabarro on historical aspects, K. Kawa-
mura on long-range topological disorder, J. M. Gal-
ligan on dislocation ‘flutter’, T. Suzuki and H. Koizumi on
quantum tunneling of dislocations, J. De Hosson on dislo-
cation dynamics, H. Alexander, H. Gottschalk & C. Kisiel-
owski-Kemmerich on the dislocation core structure
in Si, R. Jones on electronic spectra of dislocations in Si
and diamond, V. I. Nikitenko, L. M. Dedukh & V. K.
Vlasko-Vlasov on dislocations and other defects in mag-
netics, D. R. Nelson on defects in amorphous materials)
are well suited to broaden the view of the field.

The historical foundation of dislocations in solids has
many facets. Nabarro draws attention to some very early
experimental and theoretical investigations where the basic
idea of a crystal dislocation was almost there (‘tantalizingly
close’). In retrospect, it seems an unbelievably long time
from the turn of the century, when the elastic (continuum)
theory for dislocations was available (Weingarten, Timpe,
Volterra), until 1934, when the celebrated event occurred.
In a concise and yet amusing way, Nabarro guides the
reader through this story of close but not quite correct
guesses and correct but (at the time) not verifiable ideas.
We know today that etch pits due to dislocations ending
on a crystal surface had already been observed in 1865,
and the first known observations of a dislocation in the
bulk (decorated, in rock salt) dates back to 1905. Nabarro
illustrates how Prandtl, Dehlinger, Yamaguchi and others
contributed important steps toward the concept of a crystal
dislocation until the correct pattern finally emerged.

The other invited papers expand the view into the future
as the material presented here is related to some of the
most advanced experimental techniques and theoretical
ideas in dislocation research. Though mostly written for
specialists, they will give an impression of current activities
to the non-specialist, too. The contributed papers (of four
pages each) are mostly highly specialized research reports.
They represent the bulk of the 15 chapters ranging from
elastic theory and fracture to atomic structure, and covering
dislocations in metals, semiconductors and ionic crystals
as well as grain boundaries in crystalline materials and
defects in amorphous structures.

The book will be useful to anyone who wants a quick
reference guide to current topics in dislocations. Together
with the other books produced in the wake of the 1984
celebrations it shows that dislocations have matured since
1934, but that many open questions also remain to be solved
with today’s and tomorrow’s advanced techniques.

G. KOSTORZ

Institut für Angewandte Physik
ETH-Hönggerberg
CH-8093 Zürich
Switzerland


Books Received

The following books have been received by the Editor. Brief
and generally uncritical notices are given of works of marginal
crystallographic interest; occasionally a book of fundamental
interest is included under this heading because of difficulty in
finding a suitable reviewer without great delay.

which originally was published in 1964.

Halide glasses for infrared fiberoptics; proceedings of a
$85.50, £69.95.