

thoroughly updated, but many new approaches of the past decade receive scant notice. Despite the title, plate tectonic models for metamorphism are not included.

The book is well produced on the whole, with relatively few typographical errors, as it should be for the price. The references to kyanite as typical of Buchan metamorphism (p. 30) and to calcite as the product of reaction between quartz and calcite (p. 75) could cause confusion, however. It will be an important reference for workers on metamorphic rocks requiring information about other areas, but in my view this book is not sufficiently readable, clearly structured, nor cheap enough for an undergraduate course text, though it will be an invaluable source for supplementary reading.

B. W. D. YARDLEY

Holland, C. H., Editor. *A Geology of Ireland*. Edinburgh (Scottish Acad. Press), 1981. x + 335 pp., 191 figs. Price: Paperback £15.00, Hardback £27.50.

This well-illustrated book treats the geology of Ireland mainly in a historical manner from Pre-Cambrian to Recent, including chapters not only on the Caledonides and on Caledonian and Tertiary igneous activity but also on geophysical evidence and on economic geology. The nineteen chapters are contributed by only nine authors so there is a unity of style and approach. Since the appearance of the important work on the historical geology of Ireland by the late Professor J. K. Charlesworth some twenty years ago, much has happened in Irish geological research; this new treatment is at once broad and concise, each chapter having a comprehensive bibliography. There is a wealth of sketch-maps and diagrams as well as fifty-eight black-and-white photographs. A book for all libraries and the personal shelves of all concerned with Irish geology.

R. A. HOWIE

Belousov, V. V. *Geotectonics*. Moscow (Mir Publishers), Berlin, Heidelberg, and New York (Springer-Verlag), 1980. x + 330 pp., 134 figs. Price DM. 48.00 (US \$28.40).

Belousov, in this text, sets out to give an alternative scheme of geotectonics to the plate tectonic views currently in vogue amongst western geologists. It is unfortunate that the author does not indicate as to whether the views expressed are widely held in the USSR for they are certainly very different from those held and taught in the West. I enjoyed reading the book but I have to admit that I found my faith in plate tectonics and sea-floor

spreading reinforced rather than weakened by its content. It is, however, unfair to completely dismiss this text because of its rather outrageous ideas on the origins of the oceans and of fold mountain belts. The earlier chapters are connected more with the processes of epigenesis than orogenesis and the treatment of vertical crustal movements within the continents is very good. The 134 figures are all line diagrams and are generally very difficult to follow because of the host of symbols employed and the complex nature of the key supplied with each. This complexity makes some of the ideas described very difficult to follow. To sum up, this book demonstrates that life with lithospheric plates is much simpler than life without. I suspect that parts of it will infuriate many western readers (as they did me) but it has a role, assuming that it represents the views held by many Russian geologists, because it presents that view to the West and does challenge our own ideas.

MERVYN E. JONES

Bathey, H. M. *Mineralogy for Students* (2nd edition). London and New York (Longman), 1981. xii + 355 pp., 324 figs. Price (paperback) £8.95.

Two appendices have been added to the second edition to assist the student working with the polarizing microscope. As in the first edition, 170 pages are devoted to brief descriptions of the principles and methods of mineralogy. The following 130 pages consist of descriptions of about 200 minerals. Simplified descriptions of the atomic structures are accompanied by brief notes on physical including optical properties, but there are few diagrams of the minerals and a photograph only of obsidian. The appendices consist of lists of symmetry classes, hardness, reflectance, refractive indices, and uniaxial and biaxial minerals.

In the second edition one additional appendix consists of a brief procedure for the identification of minerals by their optical properties and ten charts showing the birefringence and mean refractive index or ranges of these properties. The charts refer to minerals of similar colours, length slow or fast and straight or inclined extinction. The second new appendix contains optic orientation diagrams of the commoner rock-forming minerals.

It remains the author's hope that the university student will find most of what he needs to know about mineralogy up to the level of a first degree in geology or mining. For the geologist the descriptions of the silicate minerals are inadequate and are much less informative than the data provided in the standard text *An Introduction to the Rock Forming Minerals* by Deer, Howie and Zussman.

Dr Battey does provide descriptions of more non-silicate minerals but with this text most beginners would find it difficult to develop individual skills to identify a particular common mineral.

W. J. PHILLIPS

Narasimhamurty, T. S. *Photoelastic and Electro-optic Properties of Crystals*. New York and London (Plenum Press), 1981. xxx + 514 pp., 93 figs. Price \$37.50.

This work is a comprehensive study beginning with the discovery by David Brewster in 1815, of the influence of pressure on the birefringence of crystals. The discovery of the effects of an electric field on the birefringence came much later, the Kerr

effect in 1875 and, what is now known as the Pockels effect, in 1883. The treatment of these subjects in this book is self-contained. All the mathematics is set out in such detail that it is possible to follow the analysis easily. Tensors and group theory are well explained. The subjects are developed historically and descriptions of the apparatus used in the classical experiments is given. The whole field from the initial discovery up to the present time is described.

The bibliography includes 1618 entries and there are eleven tables of the various photoelastic and electro-optic constants for all the crystals which have been studied.

The book can be most warmly recommended as a definitive contribution to this subject.

W. A. WOOSTER