

calculation of interatomic distances (bond lengths) and bond angles for each of the crystal systems. There is also a tabulation of crystal forms grouped according to crystal system.

Each chapter concludes with a set of carefully prepared exercises, and the book has also a list of selected references and a subject index. The text contains few errors: even the slip in defining the Ångstrom unit as 10^8 cm (p. 22) is unlikely to mislead for there follows its equivalent as 0.1 nm.

This text will be of value to those taking up crystallography: studied with care, it will give a sound basic understanding of the crystalline state. The author and the translator are to be congratulated in producing a clear and rigorous account that carefully explains the subject. The book is easy to read and well illustrated with over 200 clear, well labelled figures. It deserves to be widely used and, at £17.50 for the plexicover edition, it is good value.

A. C. BISHOP

Hall, C. *Gem Stones* London, New York and Stuttgart (Dorling Kindersley), 1994. 160 pp. Price £10.99. ISBN 0-7513-1026-3.

This volume in the 'Eyewitness Handbook' series offers a visual guide to more than 130 varieties of gemstones. It is abundantly illustrated with colour photographs of both cut and rough stones, typically with six or seven photographs per page, together with thumbnail sketches of the appropriate cuts used for each species. A line at the top of each entry gives the crystal system, the chemical composition (in words) and hardness, while, at the foot, the specific gravity, range of refractive indices, birefringence and lustre are listed, leaving the rest of the space clear for a description of the gemstone and its occurrence, together with the illustrations.

Ahead of the descriptive sections, there is a comprehensive introduction including sections on what comprises a gemstone, how they are formed, where they are found, and detailed sections on their physical properties (hardness, cleavage, specific gravity, lustre, morphology, refringence and birefringence, pleochroism, iridescence, chatoyancy and natural inclusions). Brief details are also given on faceting, polishing and engraving, and there are sections on the history and folklore of gems, on their synthesis, imitation and enhancement.

All these sections are again fully illustrated (and we gain a clue as to the authoritative nature of the information provided when an eminent gemmologist is seen using a refractometer and viewing stones with a hand-spectroscope); indeed Dr Roger Harding is named as Editorial Consultant and the author herself is a member of the curatorial team at the Natural

History Museum. Thus this is not only a handbook with copious and well-chosen colour photographs of high-quality gemstones, but it also gives accurate and up-to-date information on the gem species displayed. Almost the only quibble I have is with the massive green or pink Transvaal jade being described as grossular rather than hydrogrossular, which it is, — and with the neither euphonious nor grammatically correct description of pearls, jet, coral, ivory and amber as 'organics'.

But this is a wonderful text, beautifully illustrated with excellent colour photographs, and is surely a bargain at the price. It should be in the hands of all interested in this generally colourful aspect of applied mineralogy.

R. A. HOWIE

Bevins, R. E. *A Mineralogy of Wales*. Cardiff (National Museum of Wales: Geological Series No.16), 1994. 146 pp., 10 maps, 97 photos. Price £25.00 (£27.50 by post). ISBN 0 7200 0403 9.

Wales has provided ten new mineral species and, of the first reports of minerals in the British Isles, sixty-seven have been from Wales. No further justification is needed for this latest in a series of well-illustrated books on the mineralogy of popular mineralized areas.

After an introductory chapter outlining the geology of Wales and the background to Welsh mineral occurrences, with maps of mineralized regions, the main section of the book consists of an alphabetical listing of the minerals — from acanthite to zoisite — illustrated by a series of photographs, most of them in colour and of an exceptionally high quality, including a few of thin-sections or taken in reflected light. There are spectacular photographs and accompanying details for some of the species for which Wales is famous: anglesite from Anglesey, lustrous crystals of brookite from both Clwyd and Gwynedd, acicular millerite from ironstone nodules in the South Wales Coalfield, and both twinned celsian and paracelsian from the Benallt mine, on the Llyn Peninsula. Newer species are also represented, with photomicrographs of brochantite, connellite, devilline, langite, schulenbergitte, susannite and wroewolfeite.

The black-and-white annotated sketch maps showing the locations of former mines are very helpful, but otherwise it is not always easy to know which particular area of the Principality is being described. Clearly one must be armed with an appropriate ordnance survey map to tie down a specific locality, but for those readers less familiar than the author with the relatively new administrative boundaries in Wales, the inclusion of a sketch-map showing the whereabouts of Gwynedd, Powys and Dyfed would have been helpful — though often in