

would hope, but no entry for anorthite — or for andesine, bytownite, labradorite or oligoclase — and for plagioclase one has to look in the third index (because it is a subgroup). In the text we are told that the compositional boundaries for names within the plagioclase subgroup are arbitrary, which may be the reason for their exclusion. Turning to the third or general index, this is, perhaps, the one to be recommended for routine use, but unfortunately this is also where the spelling gremlins have been at work yielding such new mineral names as alietite, djurite, lawonite, pyrooxene, variamoffite and wallastonite.

When one considers the immense volume of work involved in compiling this massive reference as a whole, however, one should not be surprised that occasional lapses in proof reading have occurred. In the main text there are occasional infelicities in some of the references, the odd bracket omitted, and one doubts that there is a place in New Zealand called Otego, but there is nothing that detracts from the understanding of the vast spread of accurate and up-to-date data presented. The entire mineralogical community should be grateful to the five authors for the many years of scanning the literature and sifting and assessing the data with which we are now presented. Quite clearly each and every library claiming to cover mineralogy must have a copy of this book, and it is to be hoped that those servicing geologists would also have it on their shelves.

R.A. HOWIE

Anthony, J.W., Bideaux, R.A., Bladh, K.W. and Nicois, M.C. *Handbook of Mineralogy. Volume III: Halides, Hydroxides, Oxides*. Tucson (Mineral Data Publishing), 1997. x + 628 pp. Price £67.50 (+ £3.40 postage; available in the UK via Endsleigh Book Co., Norwich NR16 1LH). ISBN 0-9622097-0-8.

This book follows the now familiar style of the earlier volumes (e.g. *Mineral. Mag.*, **55**, 146; **59**, 771), and deals principally with halides, hydroxides and oxides, but also includes antimonates, antiminites, arsenites, carbides, nitrides, phosphides, silicides and Voxyals. Thus we are presented with single-page entries for each mineral species in this grouping, ranging from abhurite to zirklerite, with data up to 1996.

The species are presented in a strictly alphabetical arrangement, which leads to the juxtaposition of hematite with heliophyllite and of ice with ilmenite. The description of each species includes an idealized chemical formula, crystal system, habit, twinning,

cleavage, hardness and density. The optical properties cover colour, lustre, optic sign, refractive indices, pleochroism, etc. and data for the unit cell include the space group, cell dimensions, cell contents and the seven strongest lines of the XRD powder pattern. In general terms, the criterion for a mineral to be included is that it is accepted by the I.M.A. Commission on New Minerals and Mineral Names, and one has no quarrel with that, though it does mean that a name such as titanomagnetite, much used by petrologists, gets no mention, nor does the recent upstart ferritchromit find a place. It does seem a pity, however, that the more common synonyms and variety names are omitted, e.g. there is no mention of sapphire under corundum nor of specularite under hematite.

Despite any such minor criticisms, we nevertheless have a very comprehensive data source, continuing this important series of volumes. As before, the production is first rate and remarkably free of errors (though I think it unlikely that fernandinite really has a refractive index as low as 1.205). The authors are to be congratulated on getting Volume III out so soon after their earlier massive compilation of the silicates, and are keeping to their promise of keeping all earlier volumes in the series available in print. The price is very reasonable and no earth sciences library can afford to be without this and its companion volumes. Yes, the new eighth edition of Dana is now out (see above), but the approach differs considerably and good libraries will need both works. R.A. HOWIE

Blackburn, W.H. and Dennen, W.H. *Encyclopedia of Mineral Names*. Ottawa (Mineralogical Association of Canada), Special Publication No. 1. 1997, viii + 360 pp. ISBN 0-921294-45-x. Price \$40.

This attractively produced and sensibly priced hard-back book in A4 format provides a detailed study of the origin of the names of 3800 mineral species considered to be valid by today's criteria. The nomenclature used is that approved by the IMA Commission on New Minerals and Mineral Names and includes the recently published revision of the nomenclature of the amphiboles. As well as giving the etymology of each name, details are also given of the discoverer of the mineral, its type locality, chemical formula, symmetry and space group, and pertinent references. Also, where appropriate, the relationship with other species is mentioned. The introductory pages provide a detailed explanation of the principles involved in the naming of mineral species.

The entries are organised alphabetically and cover the literature to the end of 1996; each letter section is headed with a piece of mineralogical artwork by Peter I. Russell, illustrating one of the included species. In species coverage the book parallels the well known *Glossary of Mineral Species* by Fleischer and Mandarino, but provides the additional etymological information and original references. It also updates and expands on R. S. Mitchell's 1979 book *Mineral Names: what do they mean?*

The price of the book, its publication as part of the Mineralogical Association of Canada's programme, and its attractive presentation should add to its direct appeal to systematic mineralogists and ensure its successful marketing.

A. M. CLARK

British Geological Survey. *Regional Geochemistry of north-east England*. Keyworth, Nottingham (British Geological Survey), 1996. viii and 100 pp., including colour plates and figures, 44 colour geochemical maps, and a 1:250 000 folded geological map. Price £50.00 ISBN 0 852 72 255 9

This is the fourth of the impressive newer style A3-size colour atlases and the eleventh volume in the series recording the systematic southwards study of the whole of Great Britain by the Minerals and Geochemical Surveys Division of the BGS. Map presentation is based on digital geochemical imagery with the colour-scaled maps being effectively relief maps of element concentration. The digital data are also made available to industry and researchers under a licensing agreement.

The introductory sections emphasise the environmental role of the Geochemical Survey Programme with the declared principal aim being to provide environmental baseline geochemical data of the surface of Britain. The other applications are mineral exploration, resource evaluation, geological mapping and research into crustal evolution and ore formation. The BGS has led the world in the development and application of techniques in regional geochemistry and it is evident that the approach and presentation continues to evolve with each atlas that is produced. This is the first volume to combine stream sediment and soil data and the resolution of the computer images is markedly improved on that of previous atlases.

The geographic area covered in the volume includes the eastern part of the Northern Pennine Orefield, the Durham coalfield and the N. Yorkshire ironstone deposits as well as the industrial urban

areas of Tyneside, Sunderland and Teeside. It is therefore several hundred years too late to record a natural environmental baseline of the geochemistry of NE England; this is the first of the areas surveyed to be dominated by "anthropogenic influences".

The Geochemical Atlas is provided, particularly to the reader's advantage, as an independent report with a consistent systematic approach. The introduction contains very full details of the sampling and analytical techniques used as well as an explanation of the data processing procedures. A thorough overview is given of the geology of the entire area which is dominated by Carboniferous to Triassic sedimentary rocks. The Northern Pennine mineralisation is reviewed even though much of it lies outside the area. There is an extensive list of references to all aspects of the geology and all significant mineral deposits are listed as well as located on a simplified geology map. The Atlas is therefore an invaluable key reference for anyone requiring an introduction to, or initiating research on, the area.

The basis of the atlas consists of 31 single element-distribution maps (Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, Fe, La, Pb, Li, Mg, Mn, Mo, Ni, K, Rb, Ag, Sr, Sn, Ti, U, V, Y, Zn and Zr. Following established practice, major rock-forming elements are reported as oxides (CaO, Fe₂O₃, K₂O, MgO and TiO₂) while the others are reported as the elements. The images show element concentration in the <150 µm fraction of stream sediments sampled in a way to reflect the average composition of the source of the sediment. This is ideally the local bedrock but anthropogenic contamination as well as natural enhancement of elements related to mineralisation is extensive in NE England. The lack of drainage over chalk in northern Yorkshire led to the use of soil analyses and the integration of the soil data on to the stream sediment maps. Major geological boundaries are superimposed on each map. For each of the 31 maps an account of the distribution of the element is given and a preliminary attempt at explaining the regional variation as well as local anomalies is made. The reader is thoughtfully provided with a review of the geochemical behaviour of each element. There are also 5 maps related to stream water chemistry (acidity, conductivity, alkalinity, fluoride and uranium) and 8 three-component (red, green, blue) maps in which colour relates to the ratio of three elements (Cu+Mo+V, Cu+As+Sb, K+Be+Li, Mg+Sr+Ca, Mg+Cr+Ni, Co+Ni+Mn, Zn+Ba+Pb and Cu+Zn+Sn).

Of particular interest to mineralogists will perhaps be the discussion of mineralogical controls on the