BOOK REVIEWS

Significant changes are now taking place in the way the scientific community accesses and disseminates information. Information databases have been available for many years and considerable use has been made of on-line searches for obtaining information to support scientific research. The storage capacity of CD-ROMs is such that information databases have become available on CD-ROM and most larger libraries will have these available. The publication of the *MinSource* CD-ROM expands this availability with a valuable addition to the information database in the mineralogical and geochemical field. It is anticipated that there will be a significant uptake of this new database by libraries which researchers can use. However the publication of the *MinSource* CD-ROM is a more ambitious and potentially more useful development. It offers, additionally, the realistic opportunity for individual subscribers to access the information from the PC on their own desk. *MinSource* is available to members of the Mineralogical Society at an annual subscription of £100. This is a very substantial saving in comparison with typical subscriptions to other CD-ROM databases. In comparison with subscriptions to GeoRef or Elsevier's Earthdisc the cost is at least an order of magnitude lower.

MinSource is supplied to subscribers as a single CD-ROM with instructions for installation and a brief guide for users. It operates on a standard PC under Microsoft Windows 3.x and later versions, and the publishers indicate that it will also work with Windows 95. Installation of the software needed to carry out the successful operation of the system is relatively straightforward. It is advisable to close down other applications, (Microsoft Office, for example) before installation and certainly if updating to a newer version of *MinSource*. It may also be necessary to restart Microsoft Windows after running 'set-up' when updating versions of the software. These potential problems should be identified in the user instructions. However, these difficulties may not be too serious as the 'Help desk' is readily accessible. It is *necessary* to use the Help desk to complete the installation of the operating software. Considerable effort has been put into attempting to provide security to prevent unauthorised use of the CD-ROM. At the start of the installation a Licence window is generated and a user code is needed before any access to *MinSource* is given. The user code must be supplied by the Help desk, this is operated during normal office hours and is available on a London or a New York telephone number. Although this is a more elaborate system than is used by other CD-ROM database systems it appears to work satisfactorily and the security limitations are understandable in view of the competitive pricing of *MinSource*.

The user guide booklet is clearly written and concise. Essential functions are clearly explained and new and experienced users should find the booklet helpful and easy to use. Although the booklet is only 45 pages it would have benefited from an index. New users will probably have to read through most of the user guide before starting. This is not too large a task but it can be irritating to find that the booklet has been permanently fixed into the same box that stores the CD-ROM.

The CD-ROM contains the complete set of *Mineralogical Abstracts* for the last 15 years and is updated regularly with each new issue of Min. Abs. New CD-ROMs are sent to all subscribers as each issue appears. The CD-ROM also contains *Hey's Mineral Index*, and both are accessed with the software loaded. Using *MinSource* is reasonably straightforward and the search facilities are good. There are some differences between the way the software operates in the 'search for text' mode and other databases. These may not be significant but can be problematical when starting to use *MinSource*. Searches can be refined or restricted using conventional boolean operators (*and, or, not, near*) and with some care and practise the system works well. Searching for 'feldspar' generates 1683 'hits' (it is a tribute to the editing of *Mineralogical Abstracts* that searching for 'felspar' gives no hits!). Searching for 'alkali' will generate 2217 references. Searching for 'feldspar *or* alkali' will find any reference that contains either feldspar or alkali. Searching for 'feldspar *and* alkali' gives 390 references – any reference that contains *both* alkali and feldspar. However, exactly the same result is produced when 'alkali feldspar' is entered. This is a somewhat unusual method of operation and makes the boolean

operator 'and' redundant. If one seeks to restrict the search and find references that contain only 'alkali feldspar' as two adjacent words then it is necessary to enter "alkali feldspar" using double quotes (single quotes are ignored). This use is explained in the manual but it is hidden away on page 25 and should have been given more prominence. The operator *near* can also be helpful in delimiting searches and the software provides the option to chose how far apart are the searched words. Searching for alkali *near* feldspar with *near* set to 4 words would find not only any reference to alkali feldspar but also 'alkali and plagioclase feldspar'.

The software has considerable flexibility, it supports the use of wild cards and parentheses can be used to generate combination phrases. Nevertheless, some care must be taken in the search routines to allow for the limitation of the software. Searching for selenium references and entering the symbol Se, for example, will generate 1948 'hits'. The software is not case-specific and here it finds any reference to Se, se or SE! Searching for 'basalt' gives 2503 hits, but searching for 'basalts' gives 3183 different hits. These are limitations that are common to other database search protocols and should not be seen as a criticism of *MinSource* specifically.

The most productive approach to database search is to start with a broad topic and then 'refine' the search to focus on the area of interest. *MinSource* has good facilities for refining searches and with some experience (and persistence) the software works well and is rapid. However, all this, may be of little avail to users because of the wholly inadequate printing facilities. Having found and limited your references to some dozen or more relevant abstracts the user is only allowed to print abstracts one at a time. This is not only very inconvenient, it leaves the user with the impression that they are not allowed hard copy of more than a small number of abstracts. The user will normally have already paid for a hardcopy of *Mineralogical Abstracts* and there is no valid reason to limit access to further copies. These printing facilities within the software must be changed if the publishers intend this to be a serious user-friendly database.

Overall *MinSource* is a major step forward offering individual users affordable access to a major geochemical and mineralogical database. Given improvements to the printing options and some refinement of the documentation it should be well received by the mineralogical and geochemical community. The uses of the system are considerable and all researchers in the field should be encouraged to take up the 30 day free demonstration offer to see for themselves the usefulness and overall time savings that can be achieved.   J. N. WALSH

Potts, P.J., Bowles, J.F.W., Reed, S.J.B. and Cave, M.R., Eds. *Microprobe Techniques in the Earth Sciences.* London (Chapman & Hall), 1995. xi + 419 pp. Price £29.95 ISBN 0-412-55100-4.

This book is the sixth offering in the *Mineralogical Society Series* (Great Britain & Ireland), and continues the high standard that we have come to expect of this series. In October 1992, The Mineralogical Society and the Royal Society of Chemistry convened a two-day meeting on 'Microanalysis Techniques in the Earth Sciences' with the intention of reviewing the current state of the field and predicting future directions of development; the book reviewed here is an outgrowth of that meeting.

The general principles of microbeam analysis and the array of microbeam techniques currently available are reviewed by J.V.P. Long in Chapter One. It is good to see an overview of this type as the introduction to such a volume, and this chapter should be required reading for all graduate and advanced undergraduate students in the Earth Sciences; the message that "...a *combination* of these procedures will be appropriate...during the course of an investigation" cannot be repeated too often.

The following nine chapters deal in detail with specific techniques or groups of techniques, and it must be noted that the authors have all been involved in the development of these techniques since their inception. S.J.B. Reed reviews electron-microprobe analysis (EMPA) in Chapter 2, from principles of the method to instrumentation to data-reduction procedures. P.E. Champness covers analytical electron microscopy (AEM), focusing particularly on quantitative aspects of X-ray analysis and electron energy-loss spectroscopy (EELS). D.G. Fraser covers the range of techniques associated with nuclear microprobe analysis: proton-induced X-ray emission (PIXE), proton-induced gamma-ray emission (PIGE), Rutherford backscattering spectroscopy (RBS), nuclear-reaction analysis (NRA) and elastic-recoil-detection analysis (ERDA). In view of the growing importance and potential of these techniques for the Earth Sciences, I found this chapter far too short, essentially giving only cursory mention to PIGE, NRA, RBS and ERDA. In order to catch the interest of graduate students sufficiently to encourage them to use these techniques in their work, it is usually important to give several examples of the effective use of new techniques; in this regard, this particular chapter could have been three times its current length. J.V. Smith and M.L. Rivers do an excellent job in describing the theory, instrumentation and application of synchrotron-based X-ray techniques,