

REVIEWS

CROUCHER, R. and WOOLLEY, A. R. *Fossils, minerals and rocks. Collection and preservation.* Cambridge University Press and British Museum (Natural History), London. 1982. 60 pp. illustrated, index. £3.25, hardback.

For any one species of fossil or mineral, there must be a limited number of very good specimens showing all or most of the important characteristics. Those that are found must be adequately conserved and curated. This little book is directed mainly at the amateur geologist and purports to tell them exactly how to go about this task. It might also provide a few useful tips for the professional geologist likewise, or for anyone fortunate enough to come across valuable specimens. Rock samples are more easily acquired but even so, specimens from rare or temporary outcrops should be adequately curated. Special techniques are described especially for vertebrate fossils.

The authors infer that their readers will have some geological knowledge. At least they will know rock, mineral and fossil specimens when they see them. Any specimens that they are likely to take home can be considered of value. The need for conservation of localities and safety procedures is explained in the first few pages. Thereafter, it appears that every locality must look after itself, as shown by the number and variety of recommended tools (figs. 2 and 3) that can be used and which are described. The authors appear to draw the line on explosives but very large hammers, pick-axes and shovels are standard equipment for any aspiring specimen hunter and locality destroyer. There must be a conflict of conscience here between conservation and collecting. Having solved that problem the book then deals adequately with methods of recording data, labelling and preservation of the specimens.

The book describes modern techniques for extracting specimens from rock matrix and for the preparation of artificial casts. There is a formidable list of chemicals and stores needed by the modern collector. Fortunately, a list of suppliers is given (correct at the time the book was printed) although whether or not the small quantities usually required by amateur geologists are available is not mentioned. Many of the chemicals listed are toxic in one form or another but the book does go into the safety aspect of their use in great detail.

Having used the chemicals, there is then the question of their disposal. There is more to disposal than just washing in the sink. The book gives clear instructions for safely removing spent and possibly re-activated chemicals. Has the time come when it is really not safe to use anything but the simplest techniques in the home? The more sophisticated methods should only be used in specially prepared laboratories and under supervision. There is scope here for Adult Education Institutes and Geological Societies and Geology Departments to combine to give a service to the enthusiastic amateur geologist to prevent horrific accidents. Members of the East Midlands Geological Society will know that in cooperation with the Nottingham University Department of Adult Education a start has been made along these lines for E.M.G.S. members.

Don't expect this book to tell you exactly where you can find good specimens. It is a question of having found them, what is then to be done with them. I think the authors hope that once the specimens are no longer required by the finder they will have been adequately curated and preserved to be of value to others in museums. Now this point is not very well explained in the book. Members of geology departments and museums have all had experience of being led down the garden path to the shed, which now holds the once valuable collection of JOE BLOGGS, deceased many years before and whose widow has at last got round to disposing of the collection. We find all the labels and packaging have been eaten by rats and mice. Rain and damp has played havoc with the preservation of the specimens themselves which appear to be preserved only as amorphous powders, at the best covered in dust and grime. It is clear that the really good specimens should be donated almost immediately to the county or local museum. Other specimens should be offered to teaching establishments—Universities, Colleges of Higher Education and to schools long before the collector has got fed up with looking after them.

The book clearly deals adequately with the middle ground and should be read by all aspiring collectors. Perhaps a chapter on the disposal of collections could be written for a revised edition.

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LOF, P. *Elsevier's mineral and rock table*. Elsevier, Amsterdam. 1982. Wallchart. Dfl. 40.00 to Dfl. 12.00 (dependent on quantity).

Lof's attempt towards producing a comprehensive wall chart as an aid in the identification of minerals and rocks is admirable. The large chart, measuring 0.71×1.35 m, is amply illustrated and contains a wealth of data in summary form. Importantly, there is also a list of the source references used in the compilation and the cross-referencing is well accomplished.

Any potential purchaser who has not had the benefit either of seeing a copy or of reading Elsevier's publicity brochure should be advised that the sections on mineral identification, which take up more than two-thirds of the chart, are not concerned with the properties of hand specimens but with microscopic methods of identification. The title does not make this clear.

The section on ore minerals contains excellent reflected-light photomicrographs and the minerals are arranged, as claimed, in a logical and easy-to-follow format. Lof has followed a similar method for the rock-forming minerals (the largest section) subdividing those which are anisotropic on the basis of combinations of colour, birefringence and the presence or absence of two cleavages at 56° or 88° . Whilst this is a perfectly valid treatment which some may prefer, there is the inevitable consequence that the more traditional method of treating the silicate minerals by class (inosilicates, tectosilicates etc.) is not followed. Inevitably, therefore, data for any given class or sub-class (e.g. pyroxenes, amphiboles) are spread among several columns. A further criticism, this time of detail, is that the summary data given for each mineral is more complete in some instances than in others. For instance, for a student who might be looking at a thin section of a blueschist, it is very useful to find the information that glaucophane and lawsonite occur in high-pressure metamorphic rocks, and that jadeite is a common associate. By contrast, there is often no information given about the paragenesis of a given mineral: for example, we only find out that cordierite occurs with anthophyllite under the latter. Also, we learn that humites occur in metamorphosed calcareous rocks, but nothing is said about wollastonite and, similarly, whilst kyanite is described as occurring in pelitic schists, nothing is said about sillimanite or staurolite. Other criticisms of this section would be that there is a lack of information concerning distinguishing features, always helpful when there is the chance of mis-identification, and that there is no indication of which minerals are commonly major constituents of rocks and which are accessories, or very rare.

The section on rocks comprises a number of diagrams and tables to illustrate descriptive terms and classifications. The treatment is as comprehensive as could be expected. All of the common igneous, metamorphic and sedimentary lithologies are covered as, indeed, are some rarer groups such as phosphorites and charnockites.

At a price of Dfl. 40.00 for a single copy, the chart is not by any means cheap. However, there are generous discounts for bulk orders (e.g. 50 copies: Dfl. 690) and, despite the criticism of details concerning the section on rock-forming minerals, it is a chart which will be a most useful, and aesthetically pleasing, aid in teaching laboratories. For office use, one should first carefully check the available wall space! It is rather doubtful that the chart will always "save you the trouble of consulting numerous different references" as Elsevier's brochure states, but it will certainly be a most valuable source of summary data for the more advanced student of mineralogy and petrology.

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