Looking after (and enjoying) a mineral or fossil collection

People purchase minerals or fossils for different reasons. Some may simply want a unique decorative ornament for the house, others may be adding to an existing collection. Whatever the reason for acquiring a geological specimen it is useful to remember that we are only temporary custodians of them and that we will eventually hand them on to others - perhaps the next generation. It is important therefore to look after them and to retain any information that came with them.

The following advice is for taking care of, or *curating*, specimens of rocks, minerals or fossils that have been purchased. Advice on how to collect your own specimens and prepare them for your collection is beyond the scope of this brief guide.

1. General care

Professional collectors expend a considerable amount of time extracting fossils from their enclosing rocks or trimming and cleaning crystals in order to make them suitable for sale. Therefore after purchase they should not need any further treatment. However, minerals and fossils are not indestructible and once purchased, they will need to be cared for. Most are fairly robust and the retailer will advise on any special care necessary but generally it is advisable to prevent a specimen from being exposed to extremes of temperature and to keep it in a part of the house with low humidity. For example, some fossils and minerals, such as those containing pyrite (fools gold), may deteriorate if kept in damp conditions. Some minerals, such as amethyst and fluorite may be light-sensitive and the colour may fade if exposed to strong light or direct sunlight for long periods.

2. Display and storage

Many collectors display their best pieces on shelves or in glass wall cabinets. If a chest of drawers is used it should have close-fitting drawers to keep dust out. If a suitable cabinet or chest of drawers cannot be obtained an alternative is a number of shallow cardboard boxes with lids. Each specimen should preferably be kept within a shallow card tray, which serves the dual function of keeping specimens and labels together and preventing specimens from rolling about and getting damaged. Trays can be lined with tissue if necessary. Cotton wool is not recommended as it adheres to specimens.

3. Arranging a collection

Collections can be arranged in several ways. The most common method for fossils is to arrange the collection according to geological age, and keep fossils from each locality together. For minerals the most common method is to keep minerals of one species together and divide these according to locality. This is called a ‘systematic’ mineral collection. Another method is to arrange the collection topographically, in other words keep minerals of one geographical region together and divide these according to locality.

4. Cataloguing a collection

If you plan to have a large collection a catalogue of some sort is essential in order to keep track of what you have. With modern computers this has never been easier and a simple Excel spreadsheet will be ideal for this purpose with columns for, for example: number, name, description, locality, weight, date acquired, where acquired and cost. Recording the weight might seem odd but the weight (in grams) is unique to that specimen and is especially useful for minerals to avoid any future doubt about which specimen is being referred to. Other columns could be added such as size, previous owner, and, of course, which part of the house it is stored. Number the specimen by printing out small numbers on a laser printer, cutting them out and pasting the number on an unobtrusive part. Don’t forget to keep a printed copy of the catalogue with the collection.

5. Labels

The label supplied with the specimen, and any old labels (from previous owners of the specimen), should always be retained. Labels are all we have to identify the locality, which is of great importance for the specimen's scientific (and monetary) value. It is also recommended that the date of purchase be recorded, together with the name of the retailer, if known. This historical information will prove useful in years to come, especially if the specimen ever becomes part of a large or specialist collection. In other words never rely on memory – unwritten information can never be passed on.

6. More about labels

The labels should be kept with the specimen if at all possible. This may seem unnecessary if the specimens are numbered and there is a catalogue but the stark reality is that the history of geological collections is littered with instances where the collection - with beautiful numbered specimens - has survived but not the labels or the catalogue. Labels can, of course, clutter up an aesthetically pleasing specimen that is on prominent display and it is understandable to want to store them elsewhere. In this case it is recommended that the most important piece of information – the locality - remains with the specimen. You can always find out what mineral or fossil species it is again but the locality where the specimen was originally found usually cannot be identified if this information is lost. Some collectors therefore print out the locality name in tiny lettering on a laser printer and cut out and paste it on an unobtrusive part of the specimen.

7. Do not do anything that is not reversible

A general principle of geological curation is not to do anything to a specimen that is not reversible. For example, when pasting labels or repairing specimens use an adhesive that can be removed with a solvent if necessary, such as UHU. Do not use 'super glue' or 'Araldite' which are permanent and cannot be removed.

8. Cleaning specimens

Specimens kept on open shelves will collect dust and there will be a need to clean them from time to time. Most minerals can be safely cleaned in water using a soft brush such as an old toothbrush and the difference will be remarkable. Specimens with fine, delicate crystals will obviously be damaged by this method as will the very small number of mineral species that are water-soluble. In these cases a camera lens air blower may be the answer. Dust does not present the same problem to fossils and a wipe with a damp cloth is all that is usually needed. Washing fossils in water needs careful consideration as the rock enclosing the fossil (the matrix) will often be porous and soaking it could, in extreme cases, cause it to break up or cause the fossil to become detached from the matrix. This is especially true of chalk fossils and fossils from the younger geological formations.

9. Buying a hand lens or stereomicroscope

To get the most from a collection a simple inexpensive hand lens (also called a jewellers' loupe) of x10 magnification is invaluable in order to see the detail of a fossil specimen or the beauty of microscopic crystals. A small hand lens, obtainable for between £5 and £10, can open up a new world of study and fascination. Even better is a low power (x10 or x20 magnification) stereomicroscope (also known as a binocular microscope), which uses a double lens system consisting of two eyepieces each with their own objective, thus producing a 3D effect. Budget versions are available for under £50.

10. Try to specialise

Try to find a way of specialising rather than having a general collection. For example, collect minerals from Britain, or collect a particular type of fossil such as trilobites. A specialist collection will be of much greater educational and scientific value and will be a more interesting and rewarding challenge.

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