

The Cambridge Guide to Minerals, Rocks and Fossils

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The tradition of "guides" to minerals harks back to the Ancients and probably had its heyday in the Middle ages, when lapidaries, compiled for scholars by scholars (Albertus Magnus and St Hildegard of Bingen were among the most famous) listed, in alphabetical order, real or legendary stones, with their physical characteristics and their alleged virtues.

Nowadays, all natural history museum shops display a variety of illustrated guides of birds, flowers, mushrooms, seashells, minerals, and so on, for beginners or specialists.

The present guide has the avowed purpose of helping collectors to identify samples and getting the young "involved with one of the most entertaining, educational and inexpensive activities known to man," namely, mineral, rock, and fossil collecting. It is, therefore, in this light that the present guide must be reviewed.

First, it must be noted that the mineral realm poses a major problem of taxono-

my. Animals and plants can be unambiguously classified according to the Linnean scheme, from criteria often accessible to the naked eye (possibly aided by a magnifying glass), and many can be identified by comparison with a good color plate. In some measure, this is true for fossils.

Minerals, however, are defined by their chemical composition and the structure of their crystalline lattice, none of which is directly accessible. Besides, the mineral composition can vary within certain limits, without a change in name. So, except for the most obvious cases, it is generally impossible to identify a mineral from its shape and color, unless one is a practiced mineralogist...and even those must often resort to x-ray analyses.

In the present guide, minerals are (like in many museums) arranged by chemical families (such as oxides, sulphides, and silicates). For each mineral, a summary of its physical and organoleptic properties is given, together with a short description of its usual geological context, and a color plate.

The problem is even worse for rocks since they are assemblages of many different minerals in various proportions and may possibly have undergone various degrees of metamorphism at high temperature and/or pressure. Apart from trivial cases (such as limestone and gran-

ite), I find it difficult to believe that one can identify a rock with the descriptions and the color plates of this guide alone.

I am not familiar with fossils, but I suspect some (or most) of the same criticism could apply.

To say that the color plates are unsatisfactory would be an understatement. To put it bluntly, they are awful! The plates are the original ones of the first edition, 20 years ago (which may account for the low price of the book), and it could almost be said that all the colors are rendered in various shades of brown. Even eclogite, one of the most beautiful rocks, deep green with red garnets, looks like a brownish mess, and the fascinating Widmanstätten structure of iron meteorites is practically invisible on the photo.

In short, I find the guide, as it is, probably useless for identifying minerals, rocks, and possibly fossils. However, the authors are staff members of the Natural History Museum in London, with impeccable scientific credentials, and the text could be used as a primer in mineralogy and petrography.

Reviewer: Jean-Paul Poirier is a professor and geophysicist in the Department of Geomaterials, Institut de physique du globe de Paris. He is interested in the physics of minerals at high pressure.

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