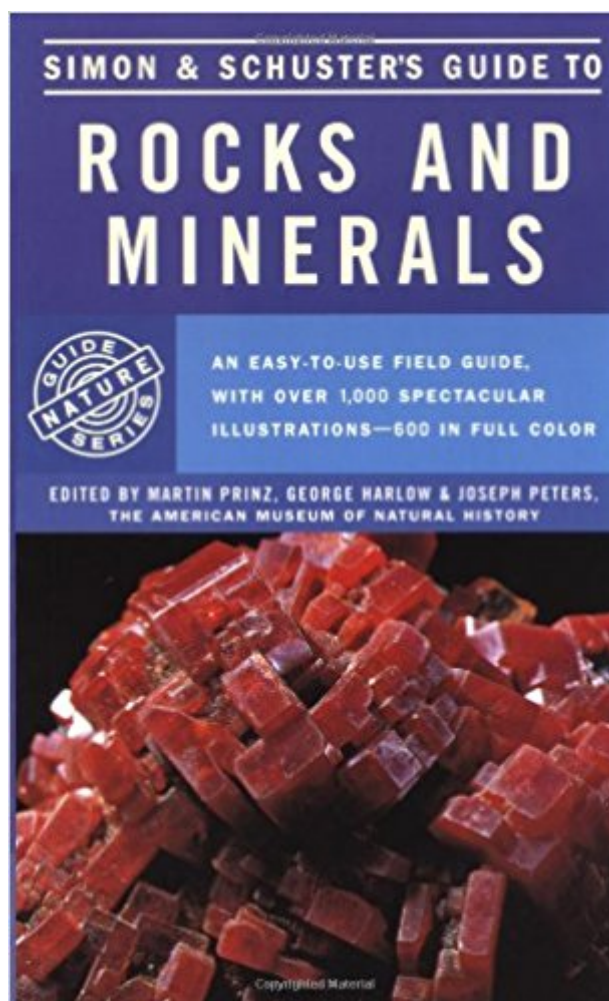


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Simon & Schuster's Guide To Rocks & Minerals



Synopsis

An easy to use field guide that contains everything rock and mineral enthusiasts need to know with more than 1,000 spectacular illustrations—600 in full color! Practical, concise, and easy to use, Simon & Schuster's *Guide to Rocks and Minerals* contains everything that the rock and mineral enthusiast needs to know. This field guide is divided into two large sections—one devoted to minerals and one to rocks, each prefaced by a comprehensive introduction that discusses formation, chemistry, and more. All 377 entries, beautifully illustrated with color photographs and helpful visual symbols, provide descriptions and practical information about appearance, classification, rarity, crystal formation, mode of occurrence, gravity of mineral, rock chemistry, modal classification fields, formational environments, grain sizes of rocks, and much more. Whether you are a serious collector or an information-seeking amateur, this incomparably beautiful, authoritative guide will prove an invaluable reference.

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Age Range: 10 - 13 years

Grade Level: 5 - 8

Customer Reviews

Chapter 11 COPPERNATIVE ELEMENTSCu (Copper)System Isometric.Appearance

Tetrahedral or octahedral crystals, Usually twinned, rare. Generally occurs in compact masses, sometimes of considerable size, or in dendritic and filiform masses. Characteristic copper-red color on fresh surfaces, more often with a greenish film of malachite or a blackish or iridescent film.

Sometimes occurs as a pseudomorph after calcite, aragonite or cuprite.Physical properties Fairly

soft (2.5-3), very heavy, ductile, malleable, no cleavage, hackly fracture. Opaque with metallic luster. Very thin sheets are translucent, letting through weak, greenish light. Excellent conductor of heat and electricity. Dissolves easily in nitric acid, staining the solution pale-blue when excess ammonia is added. Fuses at 1082° C (1980° F). Environment A typical mineral formed by chemical processes in reducing conditions in the oxidation zone of sulfide deposits. Also occurs in cavities of basalts and conglomerates, sometimes in considerable quantities. Often found in old mines subject to periodic flooding by water containing copper sulfates, appearing as crusts on iron objects or replacing fibers of wooden supports. Occurrence The finest crystals of native copper, measuring up to 3 cm (1.18 in), come from the Keweenaw Peninsula (Lake Superior, USA) where masses weighing up to 400 metric tons and natural alloys of copper and silver known as "halfbreeds" have also been found. There are other deposits with fine crystals of native copper in Germany, and Bisbee, Arizona (USA) and in the manganese skarns of Långban (Sweden) and Franklin, New Jersey (USA). Dendrites and masses are very common in many deposits (USSR, Zambia, Chile). In Europe, small deposits are found near Pisa and Florence (Italy). Uses Native copper rarely occurs in large enough quantities to be worth exploiting commercially. The metal has been important in human history, second only to iron. Nowadays its chief use is in electrical engineering (electric cables and wires) and for alloys (brass, bronze and a new alloy with 3 percent beryllium which is particularly vibration resistant).

2 SILVER NATIVE ELEMENTS

Ag (Silver)

System Isometric. Appearance Rare, cube-shaped or octahedral crystals, always small, usually displaying stepped faces. Compact masses, dendrites and wire-like forms of a silvery, gray-white color. Arborescent aggregates with small individual branches at right angles or star-shaped aggregates are common. Physical properties Fairly soft (2.5-3), very heavy, ductile and malleable. Opaque with bright metallic luster, though almost always dulled by a blackish film caused by surface chemical alteration. Fuses at a low temperature (960° C; 1760° F). Soluble in nitric acid. Tarnishes if exposed to fumes of hydrogen sulfide. The best known conductor of heat and electricity. Environment Formed by reduction of sulfides in the lower part of lead, zinc and silver deposits. Sometimes also a primary mineral, either in low-temperature hydrothermal veins associated with calcite or in high-temperature veins associated with nickel or cobalt sulfides and uraninite. Frequently associated with copper. Occurrence The finest dendritic and wirelike crystals come from Kongsberg (Norway). Other famous localities are Freiberg (DDR) and San Luis Potosi (Mexico). Large amounts of silver, though not fine crystals, are found at Chanarcillo (Chile), Cobalt, Ontario (Canada), Broken Hill (Australia) and Redbeds, Colorado (USA). The largest blocks are from Aspen, Colorado (USA), where one weighing 380 kg (844 lb) was mined. However, the

highest level of production has been from the Guanajuato mine (Mexico), about 500 billion kilos (460,000,000 tons) from the year 1500 to the present day. Found in southern Europe on the island of Sardinia. Uses An excellent ore of the metal silver, but rare. Silver is used in photography, chemistry, jewelry and in electronics because of its very high conductivity. In the USA and some other countries it is still used as currency, generally in some form of alloy.

3 GOLDNATIVE ELEMENTS

Au (Gold)
System Isometric.
Appearance Very rare, small, octahedral, cubic and dodecahedral crystals. Normally occurs in very small, shapeless grains, sheets and flakes
Dendrites rare. In placers (alluvial or glacial deposits) nuggets are common
Yellow color, varying in brightness depending on the impurities present.
Physical properties Fairly soft (2.5-3), very heavy, ductile and malleable
Opaque with bright metallic luster
Very thin sheets let through feeble, greenish light.
Medium fusion point (1061° C; 1942° F)
An excellent conductor of heat and electricity. Its insolubility in acids (except aqua regia) and its specific gravity distinguish it from yellow sulfides and from the small altered plates of biotite often found in sands, where it is associated with pyrite, arsenopyrite and pyrrhotite and with tellurides and selenides of gold. Also occurs in various volcanic rocks and tuffs, associated with chalcedony and manganese minerals
Large concentrations known as bonanzas are formed by the erosion and redeposition of gold-bearing lavas.
Environment Occurs primarily in high-temperature hydrothermal quartz veins in extrusive rocks
Frequently found as a natural alloy with silver (electrum) and less often with palladium (porpezite) and rhodium (rhodite). However, most gold is obtained from concentrations of sedimentary origin (placers). both recent (river sand) and fossil deposits (conglomerate matrix), where it is accompanied by other heavy minerals
Gold flakes are also found in the cementation zones of sulfide, selenide and telluride deposits, formed at high temperature under hydrothermal conditions
Occurrence The more gold-bearing districts are the Witwatersrand (South Africa), the Mother Lode (California, USA), the Yukon (Alaska, USA), Porcupine (Northwest Territory, Canada) and the USSR. Formerly mined in a small district near Monte Rosa (Italy). The more source of the commercial metal, used mainly as a monetary standard, in jewelry, in dentistry and for scientific and electronic instruments.

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This thing is great. The pictures and mineral information are easy to use and useful. Will be using this for a gold exploration project this summer, and having it in my pocket will really help. Has a really nice summation of most of the different types of rocks that I forgot about since optics and petrology, complete with hand sample and thin section pics. If you want a detailed, useful field guide, this is the one. It is written for people who already know a little bit about minerals, which makes it

very useful for geologists and rock hounds alike. For 13 bucks you can't go wrong, even if the binding is not the best quality. Enjoy, and cheers. Igor

My husband cuts and polishes cabashons and a friend of ours went to the Mineral Show that we were at and showed a strong interest in the different minerals and had purchased a few and started asking different questions. We had gotten the guide when we started about 20 years ago and still refer to it every now and then so for a new beginner it gives outstanding information on different minerals and the hardness and the metrics involved to assist in identifying the different stones. A very informative book to help you know and learn the different values of the minerals and rocks.

This guide has a few more minerals than my favorite, "The National Audubon Society's Guide to North American Rocks and Minerals," but its organization is not as good. The main thing that this book has that the Audubon guide does not is information on optical data. If you are going to be looking at samples under a microscope in thin section, then you probably need this book, too. If you are not going to be using a microscope, get the Audubon Guide. National Audubon Society Field Guide to North American Rocks and Minerals (National Audubon Society Field Guides)

Very helpful, easy to navigate. Good information presented in simple ways. Good photos, drawings and diagrams. Index makes finding what you want a breeze.

Arrived on time and has helped me in various occasions; field wise and class. Would highly recommend to geoscientists and anyone else interested in learning a bit more about minerals.

I bought this for mineralogy but think mindat.org will be more useful... This book doesn't list things the way I would have preferred, such as by streak, luster, cleavage, etc. It was a little disappointing and I wish I had done more research. The book does have lots of good information and a nice color picture to go with each mineral.

Good descriptions of the rocks and minerals, but the pictures are blurry. Big disappointment. Buy Walter Schumann's Handbook of Rocks, Minerals & Gemstones instead.

Beautiful book. Very well made for a paperback. Pictures are clear pages are glossary.

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