Topic Page: Gold

Definition: **GOLD** from *A Dictionary of Entomology*

Noun. (Old English, *gold*.) A soft, yellow, malleable/ductile metallic element (Au) which occurs mainly as nuggets in rocks and alluvial deposits. Regarded as a precious metal, being used in jewellery, decorations and as money. Gold is corrosion-resistant and does not react with most chemicals, but is attacked by chlorine and aqua regia.

Image from: **Gold nugget** in *Guide to Gems*

Summary Article: **gold**
from *The Columbia Encyclopedia*

metallic chemical element; symbol Au [Lat. *aurum*=shining dawn]; at. no. 79; at. wt. 196.96657; m.p. 1,064.43 degrees Celsius; b.p. 2,808 degrees Celsius; sp. gr. 19.32 at 20 degrees Celsius; valence +1 or +3.

Gold is very ductile and is the most malleable metal; it can be beaten into extremely thin sheets of gold leaf. Only silver and copper, which are above it in Group 11 of the periodic table, are better electrical conductors. Gold is chemically inactive. It is unaffected by moisture, oxygen, or ordinary acids but is attacked by the halogens. Aqua regia (a mixture of nitric and hydrochloric acids that liberates chlorine) is so named for its ability to dissolve gold, the “king” of the metals. Gold forms both aurous (univalent) and auric (trivalent) compounds; auric chloride and chloroauric acid are its most common compounds.

A relatively soft metal, gold is usually hardened by alloying with copper, silver, or other metals. White gold, a substitute for platinum, is an alloy of gold with platinum, palladium, nickel, or nickel and zinc. Green gold, also used by jewelers, is usually an alloy of gold with silver. Alloys of gold with copper are a reddish yellow and are used for coinage and jewelry. Gold is often found in nature alloyed with other metals; when more than 20% of silver is present the alloy is called electrum. The gold content of an alloy is commonly stated in carats, a carat being 1/24 part by weight of the total mass. Pure gold is therefore 24 carats fine; an alloy that is 75% gold is 18 carats fine. Fineness is sometimes expressed in terms of parts per thousand; thus gold containing 10% of other metals is said to have a fineness of 900.

Gold is widely distributed on the earth; although large amounts are present also in seawater, the cost of current methods for recovering it exceeds its value. Most gold is found in the metallic state in the form of dust, grains, flakes, or nuggets. It occurs, usually in association with silver or other metals, in quartz veins or lodes so finely disseminated that it is not visible. It is found also in alluvial placer deposits, which are worked by panning, dredging, and hydraulic mining. Gold is extracted from its ores by mechanical means and separated from other metals by chemical processes, notably the cyanide process, the amalgamation process, and the chlorination process (in this the ore is oxidized and chlorinated and the gold precipitated with hydrogen sulfide). It also occurs in compounds, notably telluride minerals.

Gold has been known from prehistoric times and was possibly the first metal used by humans. It was valued for ornaments (see goldwork), and magical efficacy was attributed to it. In the Middle Ages alchemists sought to transmute baser metals into gold. The quest for gold stimulated European

explorations and conquests in the Western Hemisphere, and its discovery has led to many a gold rush. Much of the gold now extracted is used for jewelry. The chief producers are China, Australia, the United States (especially in Nevada and Alaska), South Africa, Peru, Russia, Indonesia, and Canada. For a discussion of the monetary function of gold, see bimetallism; coin; international monetary system; money.

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