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## Gold

Gold is well known to all our readers. Here a few less well known facts:

A single gram of gold can be beaten into a sheet of 1 square meter. Gold leaf can be beaten thin enough to become translucent. The transmitted light appears greenish blue, because gold strongly reflects yellow and red. Such semi-transparent sheets also strongly reflect infrared light, making them useful as infrared (radiant heat) shields in visors of heat-resistant suits, and in sun-visors for spacesuits.

In medieval times, gold was often seen as beneficial for health, in the belief that something that rare and beautiful could not be anything but healthy. Some gold salts do have anti-inflammatory properties and are used as pharmaceuticals in the treatment of arthritis and other similar conditions. However, only salts and radioisotopes of gold are of pharmacological value, as elemental (metallic) gold is inert to all chemicals it encounters inside the body. In modern times, injectable gold has been proven to help to reduce the pain and swelling of rheumatoid arthritis and tuberculosis.

Gold has been used as a symbol for purity, value, royalty, and particularly roles that combine these properties. Gold as a sign of wealth and prestige was made fun of by Thomas More in his treatise Utopia. On that imaginary island, gold is so abundant that it is used to make chains for slaves, tableware and lavatory-seats. When ambassadors from other countries arrive, dressed in ostentatious gold jewels and badges, the Utopians mistake them for menial servants, paying homage instead to the most modestly dressed of their party.

There is an age-old tradition of biting gold to test its authenticity. Although this is certainly not a professional way of examining gold, the bite test should score the gold because gold is a soft metal. The purer the gold the easier it should be to mark it. Painted lead can cheat this test because lead is softer than gold.

One main goal of the alchemists was to produce gold from other substances, such as lead — presumably by the interaction with a mythical substance called the philosopher's stone. Although they never succeeded in this attempt, the alchemists promoted an interest in what can be done with substances, and this laid a foundation for today's chemistry.

The alchemists' symbol for gold was the circle with a point at its center (☉), which was also the astrological symbol and the ancient Chinese character for the Sun.

Since the 1880s, South Africa has been the source for a large proportion of the world's gold supply, with about 50% of all gold ever produced having come from South Africa.

## Frankincense

Frankincense is an aromatic resin obtained from trees of the genus *Boswellia*. It is used in incense and perfumes.

Frankincense is tapped from the very scraggly but hardy *Boswellia* tree by slashing the bark and allowing the exuded resins to bleed out and harden. These hardened resins are called tears.



Boswellia tree in Oman

Frankincense trees can grow out of solid rock. They have a bulbous disk-like swelling at the base of the tree which prevents the trees from being torn away from the rock during violent storms.

The trees start producing resin when they are about 8 to 10 years old. Tapping is done 2 to 3 times a year.

Frankincense has been traded on the Arabian Peninsula and in North Africa for more than 5000 years. Frankincense was introduced to Europe by the Crusaders.

The Egyptians ground the charred resin into a powder called kohl. Kohl was used to make the distinctive black eyeliner seen on so many figures in Egyptian art. The aroma of frankincense is said to represent life.

Frankincense resin is edible and often used in various traditional medicines in Asia for digestion and healthy skin. In Ayurvedic medicine Indian frankincense has been used for hundreds of years for treating arthritis, healing wounds, strengthening the female hormone system, and purifying the atmosphere from undesirable germs. Burning frankincense repels mosquitos and thus helps protect people and animals from mosquito-borne illnesses.

Standardized preparations of Indian frankincense are being investigated in scientific studies as a treatment for chronic inflammatory diseases such as Crohn's disease, ulcerative colitis, and osteoarthritis.

Frankincense smoke is a psychoactive drug that relieves depression and anxiety in mice.

*from the internet*