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## **Gold, Silver & Money**

In this blog I want to discuss the precious metals gold and silver, where they occur, how are they produced and the issue of whether or not they can still be considered money.

### **Gold Occurrence**

In nature, most gold (Au) is almost always found as native gold. This is because gold rarely forms compounds with other elements. The twenty or naturally occurring compounds that contain gold are relatively rare. On the other hand, alloys of gold with other metals do occur in nature, one example is the gold/silver alloy called electrum.

Gold deposits are found as either:

- Lode deposits such as native gold in quartz veins or disseminated gold in sulfide deposits
- Placer deposits where the gold is found as either dust or nuggets. <sup>1</sup>

Gold is extracted from placer deposits using mechanical extraction techniques, such as panning and sluice boxes, to concentrate the gold and other dense minerals. The gold is then removed from the concentrate using chemical extraction techniques.

Separating gold from a lode deposit begins with pulverizing the ore in a mill, followed by mechanical separation of a concentrate containing gold and other dense materials. The gold is then separated from the concentrate using chemical extraction techniques.

The extraction techniques used for gold concentrates from either placer or lode deposits often include the use mercury or cyanide. (A good summary can be found in the Encyclopedia Britannica entry on Gold Processing <sup>2</sup>).

### **Silver Occurrence**

In addition to native silver (Ag) there are about 143 minerals that have silver as a significant component <sup>3</sup>. Most of these Ag-bearing minerals are rare except for acanthite, proustite, and pyrargyrite. Silver also commonly occurs found as a minor constituent of copper, lead, and zinc sulfide minerals or as minor inclusions of native silver within the deposits. Most silver production is as a by-product of copper, lead and /or zinc production. <sup>4</sup>

Silver-bearing minerals are usually found in locations associated with past magmatic activity and/or hydrothermal activity. Deposits of significant grade are formed in four genetic groups:

1. volcanogenic massive sulphide deposits,
2. sedimentary exhalative deposits
3. lithogene deposits, and
4. magmatic-hydrothermal deposits. <sup>5</sup>

Geographically, silver deposits are commonly found along the trend of the western Cordillera in the Americas from the Andes Mountain Range to Mexico, the United States, Canada and Alaska. In Europe there is a similar trend of current and ancient volcanic activity that passes from Spain in the west into Turkey in the east. <sup>4</sup>

Because silver is mostly produced as a by-product of other metallic mineral production, the methods for extracting silver from the ore will depend on the primary metals in the deposit. Generally, the ore will be crushed and then smelted and/or chemically treated to separate the silver from the other constituents in the ore. (A good summary can be found in the Encyclopedia Britannica entry on Silver Processing <sup>6</sup>)

### **Is it Money?**

The use of gold and silver as currency for trade appears to have begun about 5,000 years ago in Mesopotamia. Until the middle of the twentieth century, gold and silver were normal parts of the money supply. Gold was often used to settle large, especially international accounts and silver was used in everyday coinage. After the United States went off the gold standard in 1973, most other nations followed suit. Similarly, in the latter half of the 20th century, silver coins were gradually replaced with coins made out of base metals such as nickel. Silver dollars were last issued in Canada for normal circulation (as opposed to collectors items) in 1967. It appears that the story of gold and silver as money is over.

Or is it?

Our current system of money can best be described as a consensual hallucination in that we all agree that these pieces of paper, book-keeping entries and computer algorithms are worth something. The value of our money is intimately connected to the power and authority of the governments that issue the currency and decree its value by fiat. But what happens if trust in the consensual hallucination of fiat currency fails?

Many people who keep gold and silver do so as a hedge against currency instability. Often you will hear them make the following claim:

*"Gold is currency of kings, silver is the currency of free men, barter is the currency of peasants and debt is the currency of slaves."*

The thinking goes that if the value of fiat currencies drops too much, then gold and silver will be the only acceptable currency. The problem with this line of thinking is that currency instability is often accompanied by social and political instability. Ultimately, the value of money depends on the stability of the community that maintains the consensual hallucination, i.e. that links "money" to the value of things we objectively need such as food, clothing, shelter, transportation and fuel.

We may want to ponder the fact that one of the reasons we know a lot about Roman currency is that when the Western Roman Empire was falling apart, wealthy families buried their hordes of currency. After the barbarian war bands came and went, many of the owners of the buried treasure did not, or could not, return to retrieve their stashes, as in Figure 1.



Figure 1 - Roman coins <sup>7</sup>

The day may come that gold and silver will again be used as money in response to social and political instability and a collapse of trust in government sponsored fiat currency. Hopefully, it won't be accompanied by the return of barbarian war bands and a new Dark Age.

#### References

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