

times of restitution of all things” (Acts 3:21, AV). In contrast, the song of Moses in chapter 32 predicts future rebellion and consequent punishment that would occur before the final glory would be attained by the nation. Nevertheless,

the last verse of his song does look forward to the time of blessing when the Gentiles will rejoice with God’s people and atonement will have been provided for both land and people (v. 43).

(To be continued)

New feature

Metals in the Bible

3. Silver (Part 1)

Peter Hemingray

In 1996 and 1997 The Testimony published two two-part articles under the title, “Metals in the Bible”, in which we looked at iron and copper.¹ We considered the ancient technology of iron, and how this knowledge helps illuminate the Biblical references to it. In particular, we saw how the introduction of iron during the period of the conquest affected the Israelites, who had to overcome superior technology through the power of God. For copper (or brass, as the AV terms it) the ancient metalworking methods were illuminated with illustrations from Timnah in Palestine, and we argued for the symbology of copper in the Bible being primarily that of strength, and only rarely that of the strength of sin. The intention was to complete these studies on metals of the Bible by considering silver, then gold. This we have now done in two further two-part articles to be published in this and the coming months, God willing.

WE WILL CONTINUE the theme of illustrating the Biblical passages about metals with descriptions of the ancient metalworking techniques, as we consider silver, the next metal up in Nebuchadnezzar’s image after the iron and brass already considered. As the story of lead is, at least technologically, closely intertwined with that of silver, we will also deal with that metal.

It must also be said at the outset that it is difficult to separate silver from gold in the Biblical narrative. Of the 280 or so references to silver in the Bible, less than half are to silver alone; in the rest silver is coupled with gold. But as the two metals have different methods of extraction, and as the story of silver is so closely associated with that of money, it seems natural to treat the two in different articles.

So in this two-part study of silver in the Bible we will:

- introduce the metallurgy of silver, to help us understand some of the more obscure Biblical references to silver and its extraction
- look at how silver was used as the means of exchange in Israel from earliest times

- examine the references to refining and crucibles in the light of our knowledge of ancient metalworking practices
- look at the few references to lead in the Bible, often associated with silver for reasons we shall see
- consider how silver was used symbolically, as a symbol of wealth, but also of spiritual deterioration, as contrasted with the purity of our Lord.

The refining of silver

Silver, unlike gold, is found only rarely in its native state, but is relatively easy to extract from its ores, usually lead.² Very early, in the times before the Exodus, native silver and rich silver ores were probably used, but the evidence is that by the time of Moses these rich sources had

1. Iron in Apr./May 1996 and copper in Jan./Feb. 1997.
2. The most accessible source of information, although now somewhat dated, is *A History of Metals*, L. Aitchison, New York, 1961. A more recent work is *Early Metal Mining and Production*, Paul T. Craddock, Edinburgh University Press, 1995.

mainly been worked out. Thus, in the times we are concerned with, the ores used for the recovery of silver were primarily lead-silver ores, most usually lead sulphide, called galena.

Silver was primarily used from the start for ornaments; its lack of hardness made it useless for making implements. Its value arises partly from its comparative rarity, and partly from its properties of resistance to corrosion, brilliant white lustre, malleability and ductility, all of which make it very suitable for artistic decorations.

The process of extraction was fairly simple. First, the lead ores were, in their simplest form, heated in a fire and the lead then sifted out from the ashes. Lead itself is of little value but almost always contains a small percentage of silver. This was freed from the lead by heating in a furnace with a bed of bone ash, which absorbs some of the lead. A blast of air was used, and this causes the rest of the lead to oxidise, forming a cake known technically as litharge. The silver rises to the surface of the semi-liquid slag, or 'dross' as it is referred to in the Bible. This was removed, either with a blast of air or a scraper. After all impurities are removed silver will radiate a pure, brilliant light. (We will comment on the symbolism of this later.)

Twice refined

The silver was then usually refined twice to remove the remaining impurities in a process called 'cupellation', from the French *cupelle*, a small cup. A cupel is a shallow vessel, often made of bone-ash but sometimes of clay. Lead was usually added to the silver, if relatively pure silver was the starting point. The furnace was heated until the metal became bright red (950° C, 1750° F). Then an air blast was blown across the molten metal, and the resultant lead oxide, or 'litharge', would be either burned up or absorbed into the porous cupel, leaving the silver intact. If the process was a simple assay, or refinement, the bone-ash of the cupel would absorb the litharge. This litharge has the further property of dissolving the oxides of some of the other base metals that might be present, such as antimony, copper, or arsenic.

Iron oxide was usually added to the mixture as a flux in the primary smelting operations. But if that smelting operation was done under incorrect conditions (too reducing or too hot), then there would form a spongy metallic iron ore mixed with the lead, which would render subse-

quent cupellation almost impossible. In addition, it would not succeed if there was too much tin present in the lead, or the furnace was considerably overheated. Further, in refining pure silver there was always an uncertainty as to how much lead to introduce, since the quantity required depended on the quantity of impurities in the silver. If not enough lead was added to the impure silver, the copper oxide or tin would form on top of the silver, leaving a scummy mess. So, seeing the silver radiate its pure light was always a great relief to the ancient metallurgist; the process was only partially under his control. It is interesting that this process, and the vessels used, are referred to several times in the Bible, as we will discuss later.

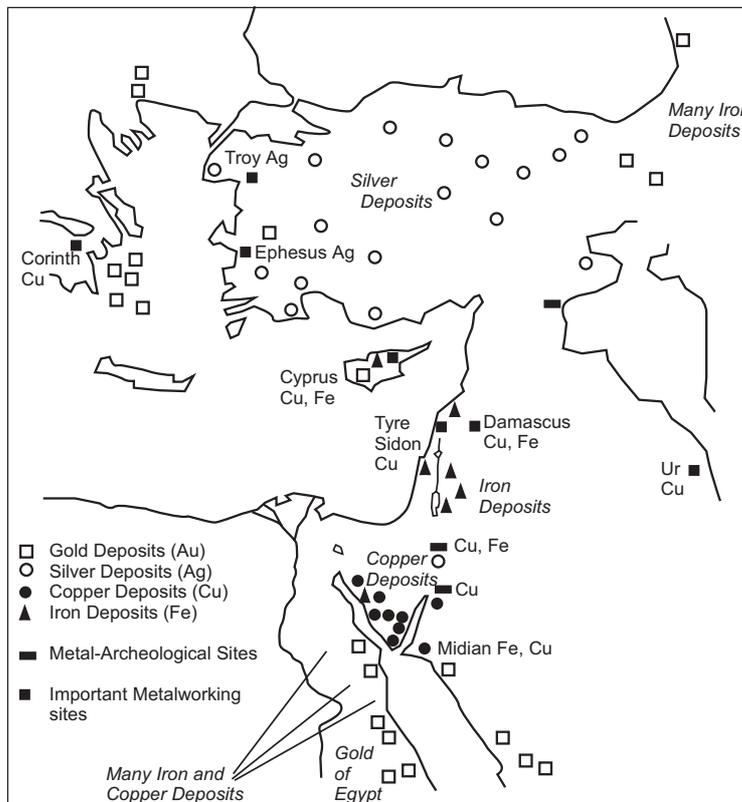
Valuable metal

The origin of the extraction of silver goes back historically to a time close to the origin of other forms of metalworking, but both archaeological and Biblical evidence confirm its major development as later than that of gold, copper, or meteoritic iron. It was also quite rare and expensive for many years; ancient texts give the ratio between the value of silver and gold as one to three or so, and it rarely fell to less than one to eight, compared with a modern-day ratio of one to seventy or so. (It might be mentioned that the copper to silver ratio was one to 120 or so for most of the period when Israel was a nation, 1400 B.C. – A.D. 100)

Regarding the mining of silver, we dealt with Job 28, the major reference to mining in the Bible, when we dealt with copper.³ However, another passage in Job deserves mention: "Then shalt thou lay up gold as dust, and the gold of Ophir as the stones of the brooks. Yea, the Almighty shall be thy defence, and thou shalt have plenty of silver" (22:24,25). The Hebrew parallelism is quite missing in this translation of verse 25. It ought rather to be translated: "And the Almighty shall be thy ores, and as silver from the mountains unto thee". I believe the meaning is then clear. If Job repents he will be rewarded, not by mere nuggets of silver extracted from leaden ores, but pure silver brought from the mountains of distant Armenia, the major source at that time.

Finally, from the [map](#) it is clear that, according to modern archaeologists, neither silver nor gold were ever to be found within the confines

3. Jan. 1997, pp. 24-5.



Gold, silver, copper and iron in the ancient Middle East

of the land of Israel in significant amounts. There was abundant copper, some iron, but no precious metals.

Biblical references to silver refining

All the passages below show the familiarity the various authors had with the refiner’s art, but the same cannot be said of the translators.

“The words of the LORD are pure words: as silver tried in a furnace of earth, purified seven times” (Ps. 12:6).

This verse refers to “a furnace of earth”, which is technically impossible, due to the temperatures involved in refining silver, which is what is being referred to. It appears, from mostly metallurgical considerations, to be referring to the re-melting of silver in a porous clay crucible, which in turn is placed in a furnace. The reference to “purified seven times” is partially symbolic, clearly, with the use of “seven”, but is not much of an exaggeration, as we know silver and gold were purified multiple times in that era. Thus a

better translation would be: “The words of the LORD are pure words: [as pure] as silver refined in an earthenware crucible, purified seven times”.

“The fining pot is for silver, and the furnace for gold: but the LORD trieth the hearts” (Prov. 17:3);

“As the fining pot for silver, and the furnace for gold; so is a man to his praise” (27:21).

These references are also slightly obscure, but “the fining pot” refers to a crucible, so perhaps Solomon is saying that silver is refined in a crucible, but gold in a furnace. This is true, but gold was also refined in a crucible in a furnace, in the same way that silver is.

“I have set thee for a tower and a fortress among My people, that thou mayest know and try their way. They are all grievous revolters, walking with slanders:

they are brass and iron; they are all corrupters. The bellows are burned, the lead is consumed of the fire; the founder melteth in vain: for the wicked are not plucked away. Reprobate silver shall men call them, because the LORD hath rejected them” (Jer. 6:27-30).

The AV seems to get the whole point of the passage wrong. The analogy used is that of Jeremiah, God’s representative, being a refiner of base metals, with the objective of obtaining silver. The passage would be better translated: “An assayer I have made you among my people, so that you may know and assay their way. They are all princely rebels, bearers of slander, bronze and iron, all of them, destroyers they are; the bellows are scorched by the fire, the lead is consumed—in vain the refiner has refined, but the evil are not separated out. ‘Reject silver’ they are called, for the LORD has rejected them”. An assayer is one who attempts to test the purity of a metal, silver in this case, and the picture presented is of the refiner obtaining no silver; despite all his efforts

lead remains, or else other base metals such as copper or iron. There is no goodness, represented by silver, in all the nation of Israel.

“Son of man, the house of Israel is to Me become dross: all they are brass, and tin, and iron, and lead, in the midst of the furnace; they are even the dross of silver. Therefore thus saith the Lord GOD; because ye are all become dross, behold, therefore I will gather you into the midst of Jerusalem. As they gather silver, and brass, and iron, and lead, and tin, into the midst of the furnace, to blow the fire upon it, to melt it; so will I gather you in Mine anger and in My fury, and I will leave you there, and melt you. Yea, I will gather you, and blow upon you in the fire of My wrath, and ye shall be melted in the midst thereof. As silver is melted in the midst of the furnace, so shall ye be melted in the midst thereof; and ye shall know that I the LORD have poured out My fury upon you” (Ezek. 22:18-22).

The picture here is of smelting in general, and not of silver in particular. It is noteworthy that silver was smelted twice, and so it is mentioned twice in the passage. The passage is perhaps based upon a similar thought in Isaiah 48:10: “Behold, I have refined thee, but not with silver; I have chosen thee in the furnace of affliction”. Elsewhere there are references to the miracle of Israel’s deliverance as it were out of the iron smelting furnace of Egypt (Deut. 4:20; 1 Kgs. 8:51; Jer. 11:4). Now, the message of the Lord through Ezekiel is cutting in its severity. Because of its sins, Israel in Ezekiel’s day had become

useless dross, for which the fiery furnace was the only proper place. God’s face is here shown as One Who is terrible in judgement. Notice also that in verse 18 silver, the desired end result, is not present among the metals, it has already been extracted, or was never present; the work of the refiner is in vain. And clearly the metallurgy of Ezekiel is well established. Lead, silver, copper, tin and iron would all be known to exist in a refiner’s furnace, and would all seem to melt in the blast of air when the furnace was red hot.

“And I will bring the third part through the fire, and will refine them as silver is refined, and will try them as gold is tried: they shall call on My name, and I will hear them: I will say, It is My people: and they shall say, The LORD is my God” (Zech. 13:9).

This passage uses a very similar imagery to the previous ones, the refining of silver by fire being equivalent to the purification of Israel.

“But who may abide the day of his coming? and who shall stand when he appeareth? for he is like a refiner’s fire, and like fullers’ soap: and he shall sit as a refiner and purifier of silver: and he shall purify the sons of Levi, and purge them as gold and silver, that they may offer unto the LORD an offering in righteousness” (Mal. 3:2,3).

In this very familiar passage the simile of the Lord as a refiner of silver occurs again. Here the prophetic application to the Lord Jesus Christ is quite clear.

[\(To be continued\)](#)

Redemption and ransom

Ralph Green

THE THEME OF redemption from sin and death was introduced in God’s eternal purpose from the very beginning. Our first parents, Adam and Eve, were blessed with the companionship of angels, and they had the opportunity of enjoying unending life in peace in the beautiful surroundings of the Garden of Eden.

Because God, their Creator, had given them life in the first place, He had the right to lay down conditions for its continuance. He looked

for obedience to His requirements and an appreciation of His goodness. A practical test was devised by introducing a simple law; they were not to eat of the tree of the knowledge of good and evil, which grew in the garden. Adam was told that if he disobeyed this command he would surely die.

Eve was fully aware of this law, but when in conversation with the serpent she was told that she would not surely die, she was being told something that clearly contradicted what God