

TECHNICAL, ARTISTIC AND SYMBOLIC USES OF SILVER IN THE BIBLE

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INTRODUCTION.

Silver is a soft, white, lustrous metal, which exhibits the highest electrical and thermal conductivity of any metal. This metal is found in the Earth's crust in its pure form as well as in alloys with other metals and in some ores. Since silver is somewhat more reactive than gold, its usefulness was more limited until the technique of refinement developed as early as the 4th millennium BCE.

Silver has been highly valued as a precious metal in the Bible. It is mentioned second in the list of important metals immediately after gold (Gen. 13:2; Num. 31:22; I Chron. 22:16). Since silver is mentioned hundreds of times in the Bible I will use illustrative examples of its significance rather than list all the citations.

SOURCE

Silver deposits were mined as early as in the 3rd millennium in Greece and Turkey.¹ This metal was known to all the ancient civilizations, but it was rarely found as a natural metal.² Silver was most often refined from its ores, and may also be obtained as a side product of refining other metals such as copper or lead. This metal became more useful when the refining process was invented approximately 2500 BCE.³ The largest source of silver ores in ancient times was found in what is now Spain.

I Kings 10:22 and II Chronicles 9:21 both describe that silver was obtained from Tarshish by ships owned by King Hiram. This indicates that the Judean Kings had a fruitful relationship with King Hiram and also that they had the economic resources to purchase valuable metals. Ezekiel describes the extent of trading with Tarshish as *bartered silver, iron, tin, copper utensils, live-stock and slaves* (Ezek. 27:12).

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PROPERTIES

The noble metals, silver, gold and copper, have relatively low melting points, 962, 1064, 1085 °C respectively. Silver has a high density (10.49 gr/cm³) and very low hardness. On the Moh's scale its hardness is 2.5, illustrating its soft, ductile property.⁴

The temperature needed to melt these metals could be reached in the ancient furnaces through the use of bellows, which provided the necessary forced draft of air to facilitate the process. Some of the words in the Bible illustrate the skills and the technical level. The blacksmith was called *nappah* (user of bellows) (Jer. 1:13, 6:29; Isa. 54:15; Ezek. 22:20) or *pehami* (user of charcoal) (Isa. 54:15). These expressions indicate that there was activity involving smelting and use of ovens and that the blacksmith was aware of the need to blow air to increase the temperature of the oven. The text recognizes the importance of metalworking, noting that Tubal-Cain was a skilled craftsman (Gen. 4:22), one of the three early professions singled out in Genesis (herdsman, musician, metalworker). The text also recognizes the significance of having ore deposits (Deut. 8:9). Job notes the difficulties the miners face in producing the ores (Job 28:1-6, 9-10). The refining process, which was called cupellation, is described by Ezekiel in some detail (22:18-22).

THE EQUIPMENT: FURNACE, CRUCIBLE, BELLOWS, DROSS.

Let us examine the words indicating the equipment. The major items in the process necessary for smelting and refining silver are the furnace, the crucible and the bellows. The end product besides silver is the dross.

A. FURNACE

There are many references in the Bible to some type of furnace, here we will focus on those which were specifically utilized in smelting and metal refining. The word *atun* may be of Akkadian origin and was used for baking bricks and smelting metals (Dan. 3:6,11,15,17,19,20-22,26). In the context of the text this furnace carries the connotation of being also used in punishment. *Chur* is specifically a smelting pot for metals (Deut. 4:20; I Kgs. 8:51; Jer. 11:4; Prov. 17:3, 27:21; Ezek. 22:18). The prophet Zechariah (13:9) describes the process as, *I will smelt them as one smelts silver, and test them as one*

tests gold, while the prophet Malachi (3:3) states, *He shall act like a smelter and purger of silver*.

B. CRUCIBLE

Two words are used to denote the crucible. The word *alil* was found only in Psalms 12:7. The word *matzreph* is more often used to depict a crucible (Prov. 17:3, 27:21; Malachi 3:2,3). The Proverbs refers specifically to the crucible being used for silver, *the crucible is for silver* (Prov.17:3).

C. BELLOWS

There are four places where it is quite clear that bellows were used to blow on the fire in order to smelt metals. Isaiah 54:16 refers to the smith who blows the fire on coals. In Job 41:20, the smoke is blown out of the melting pot. Jeremiah describes the purification process: *The bellows are burned, the lead is consumed in the fire* (Jer. 6:29). These sources suggest that in that time period the Judean society had some familiarity with the purification equipment and the refining process.

D. DROSS

The end product of the refining process besides silver was the dross, the slag of the impurities. The frequent use of metallurgical imagery to illustrate moral concerns or ethical issues provides us with some evidence that people were familiar with the refining processes and understood the allusions and the metaphors. Metal refining is most often used in this symbolic meaning to reinforce the necessity to purify Israel. This imagery is found in Proverbs 25:4, *The dross having been separated from the silver, a vessel emerged for the smith*. Isaiah 1:25, even mentions another metal, tin in the dross: *I will purge away your dross and will take away your tin/alloy*. The dross is frequently a symbol of the evil behavior of society, as in Ezekiel 22:18: *The house of Israel became dross to Me: all of them are brass and tin and iron and lead, in the midst of the furnace; they are the dross of silver*, and Ezekiel 22:22, *so I will gather you in my fierce anger and cast you into the fire and melt you*.

THE SMELTING PROCESS.

The cupellation or smelting process consisted of heating a mixture of precious and base metals or ores in a furnace. A stream of air flows over the reaction in the hearth. As the base metals oxidize more readily than noble metals, these may be removed either by blowing the fine ashes away or by absorption in the furnace lining. In the early production, lead ores containing silver sulfide ores were used to produce first a silver-lead alloy from which the lead could be removed, skimmed off as molten lead oxide.⁵ Lead itself could also be easily removed as its melting point is substantially lower (327.5 °C). Lead oxide (PbO) melts at 888 °C, which is still lower than the melting point of silver and therefore may be separated. From this process we may gather that silver and lead refining have similar conditions and we note that these metals are often mentioned together in the Bible.⁶

The resulting lead oxide, which is called in the Bible silver dross, was subsequently used for glazing pottery (Prov. 26:23). Archaeological findings of silver and lead objects together and litharge slag have been studied in numerous sites in the Near East. The results reveal that this technique was known even in the early Bronze Age.⁷ The end product after the refining process, the litharge slag has also been mentioned in Isaiah 1:22 and Ezekiel 22:18.

THE TECHNIQUES OF MAKING SILVER OBJECTS.

There are many important objects which were made of silver by different techniques. Beaten silver is referred to in Jeremiah 10:9 *silver beaten into plates is brought from Tarshish* and decorative objects overlaid with silver in Isaiah 30:22, *and you will defile your graven images overlaid with silver.* These reflect some of the techniques in use.

One of the best known decorative object is the beautiful silver goblet Joseph hides in his brother' packages to test their loyalty, *Also put my cup, the silver cup in the mouth of the sack of the youngest and his grain money* (Gen. 44:2).

The Bible refers to idols made out of silver in many citations. Some illustrative examples are in *Their idols are silver and gold* (Ps. 115:4) and *Their idols of silver and their idols of gold, which they made for themselves to worship, the work of man's hands* (Isa 2:20). Daniel 2:32, also mentions a statue in which the chest and arms were of silver. Isaiah 40:19 describes the con-

struction of an idol: *a man will cast away an idol! A craftsman casts it, and a goldsmith overlays it with gold and casts for it silver chains.* Here, we may even note that the process was casting.

BOOTY, PLUNDER, BATTLE REWARD

As silver was considered very valuable it is mentioned in many passages as booty or plunder obtained in battle. The words *bazaz* and *malkoach* were most frequently used (Gen. 34:27; Josh. 8:2; Isa 19:6; Num. 31:11,12; Ps. 22:15; Isa. 49:24). In Judges 5:19 they did not take silver as plunder, however In Joshua 22:8 and Ezekiel 38:13 silver was part of the plunder. In Exodus 3:22 the Israelite women requested silver and gold from their neighbor prior to escaping from Egypt, *Every women will ask for articles of silver and gold and fine clothing from her Egyptian neighbors and so you will plunder the Egyptians.*

Another aspect of the plunder is cited in Numbers 31:22-23 where Moses commands the Israelites how to purify the spoils of war containing metals including silver. *This is the statute of the law which the Lord commanded Moses: Only the gold, silver, bronze, iron, tin and lead. Everything that can withstand fire must be put through the fire and it will be clean.*

TRIBUTE TO JUDEA AND FROM JUDEA TO ANOTHER COUNTRY

The value of silver is also reflected in Judea's international relationship. In some cases conquered tribes paid tribute to Judea in silver, gold, livestock and weapons; II Chronicles 17:11 describes a case when the Philistines brought silver as tribute and Arabs brought 7700 rams and 7700 goats. II Chronicles 9:14,15 mentions visitors who came to King Solomon with gifts of silver, gold, robes, spices and livestock.

However, even more citations may be found regarding ancient Israel paying tribute to powerful nations such as Assyria. One of the most significant such tribute may be found outside the Bible written on the Black obelisk of Shalmaneser III, who reigned from 858-824 BCE. The monument was erected in 825 BCE,⁸ “the tribute of Jehu son of Omri, I received from him silver, gold, a golden bowl, a golden vase with pointed bottom, golden tumblers, golden buckets, tin, a staff for a King and spears.”

In II Kings. 18:14 we find a message from King Hezekiah to the King of Assyria at Lachish in an attempt to make peace with the tribute: *I have done wrong. Withdraw from me and I will pay whatever you demand of me.* The King of Assyria exacted from Hezekiah three hundred talents of silver and thirty talents of gold.

BUILDING MATERIALS

Silver was used not only as decorative object, but as part of the building construction of the Tabernacle and later of the Temple. Forty silver bases are mentioned for support of the Tabernacle. The hooks and bands were also made of silver. These seemed to be cast artifacts, but the tops were other material overlaid with silver (Ex. 38:19; 36:36;26:19;27:11,17; 38:10,11,19; 26:25; 26:32;36:24,26).

The weight of the silver used in the construction of the Temple is quoted in I Chronicles 18:11, 29:7. One talent is equivalent to 75 lb or 34 kg. Therefore the 10,000 talents of silver in I Chronicles 29:7 is equivalent to 34,000 kilograms, an immense quantity.

DECORATIVE ARTIFACTS

Song of Songs 1:11 notes the added beauty of the beloved by *span-gles/studs of silver.* Silver was used for objects in the Tabernacle and the Temple. Many of these are made of silver or gold. In Numbers 7:13 Nachshon son of Aminadav from the tribe of Judah offered a silver bowl and a silver basin both filled with flour and oil mixed for a meal offering for the Tabernacle. Similar offering were made by the other tribes for twelve days. In the Temple we read about silver lamps and lamp stands and silver tables for the bread used in the sacrifices (1 Chron. 28:15,16). Numbers 7:84-86 describes the immense amount of silver bowls and basins offered by the tribal chiefs of for the dedication of the altar. The total weight of the silver was 2400 shekels. As 1 shekel is given as 12 grams of silver, this amount yields 28.8 kg only from one tribe.

MUSICAL INSTRUMENTS

Numbers 10:2 provides us with a good description of a musical instrument. *Make yourself two trumpets of silver, of hammered work you shall make them, and you shall use them for summoning the congregation and for having the camp set out.* Note the workmanship on the trumpets. Hammered work signifies that they were able to make flat sheets of this metal. The sound of the instrument was used to alert the tribes for important events and to indicate leaving and stopping in their battles or agricultural efforts. Its use in Temple is illustrated by *praise Him with the sound of the trumpet* (Ps. 150:3), and *a hundred and twenty priests sounding with trumpets* (II Chron. 5:12).

MONETARY VALUE

The trading value of silver is expressed quite early in Genesis 20:16, where Abimelech compensates Sarah as he restored her to Abraham by 1,000 pieces of silver. Abraham was known as a man rich in silver and gold (Gen. 13:2). When Sarah died, he purchased a plot of land for her tomb for 400 pieces of silver from Ephron the Hittite. A similar regard for the value of silver is expressed in Genesis 37:28, where Joseph's brothers sell him to the Midianites for twenty pieces of silver. Later Joseph tested the honesty of his brothers by hiding a silver goblet in one of their bags (Gen. 44:2).

SUMMARY

We have seen that the words used in the process of smelting and purifying silver were known and understood by the population in biblical times, and were used in symbolic ways to convey moral warnings. Additionally, a variety of methods were used in producing silver artifacts, i.e. casting, beaten sheets, overlaid objects.

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NOTES

1. J. Emsley, *Nature's building blocks*, (Oxford: Oxford University Press, 2001), pp. 392 -397.
2. J.O. Nriagu, *Lead and Lead Poisoning in Antiquity* (New York: John Wiley and Sons, 1983), pp. 69, 96; S.V. Meschel, "The use of the metal lead in the Bible", *Jewish Bible Quarterly*, 44:1 (2016), pp. 53-57.
3. J.R. Partington, *Origins and Development of Applied Chemistry* (New York: Longmans, Green and Co., 1935), pp. 486-488; M.E. Weeks, H.M. Leichester, *Discovery of the Elements* (Easton, Pa.: Journal of Chemical Education, 1968).
4. J. Emsley, *Nature's building blocks*, (Oxford: Oxford University Press, 2001), pp. 392 -397; M.E. Weeks, H.M. Leichester, *Discovery of the Elements* (Easton, Pa.: Journal of Chemical Education, 1968); J. Emsley, *Nature's building blocks*, (Oxford: Oxford University Press, 2001), pp. 392 -397.
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7. J.R. Partington, *Origins and Development of Applied Chemistry* (New York: Longmans, Green and Co., 1935), pp. 486-488; W.G. Williams, *Archaeology of Biblical Research* (Tennessee: Abingdon Press, 1965), p. 121.
8. W.G. Williams, *Archaeology of Biblical Research* (Tennessee: Abingdon Press, 1965), p. 121.

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