

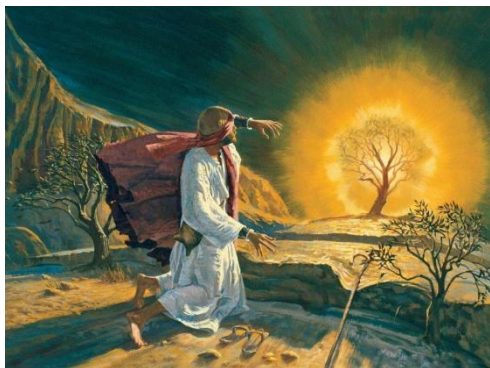
FAMILY DEVOTIONS

Humanities/Physics

Lesson 5 Physics

DEVOTIONS: EXODUS 3

EXODUS 3:5-6 ⁵ “Do not come any closer,” God said. “Take off your sandals, for the place where you are standing is holy ground.” ⁶ Then he said, “I am the God of your father,^[a] the God of Abraham, the God of Isaac and the God of Jacob.”



A burning bush that isn't consumed by fire or a pillar of fire that needs no fuel in the desert – both are supernatural fires unknown to anyone of us who've tried to start a campfire. God's presence and the Holy Spirit's actions are awe inspiring. An all-consuming fire demands respect. As God told Abram, “Take off your sandals, for the place where you are standing is holy ground.”

God called Moses to free his people from Egypt.

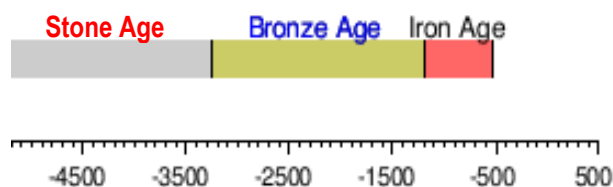
Rebellion within the tribes, against Moses and God, resulted in 40 years of wandering in the desert – the regions of the Sinai Peninsula and Arabian Desert – before they were able to enter the promised lands again. The nation was forced to rely on God alone for their food (manna and quail) and water. When the rebellious generation passed away, Joshua led the Israelites into the promised land. Moses' last days were spent observing the land of Canaan from Mt. Nebo.

At that time the Israelites were ruled by judges (chosen leaders from among the 12 tribes of Israel), who from time to time banded together with other tribes to fight enemies or to work together. Three to four centuries later, the Hebrew nation cried out for a king though they were warned of the dangers. From their cries, King Saul, then King David, and finally King Solomon reigned over a United Kingdom of Israel.

HEBREWS 1:29 ²⁹ By faith the people passed through the Red Sea as on dry land; but when the Egyptians tried to do so, they were drowned.

TIMELINE/Introduction (History): The Beginning of the Iron Age

1500-1000 BC Hot Oven Metallurgy, Smelting, Iron and Magnetism.



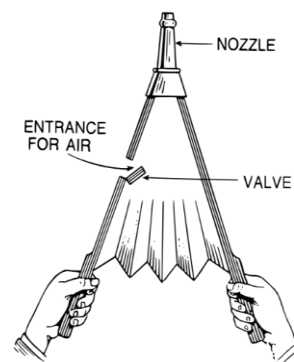
The **Iron Age** has various start times for different cultures; however, it is generally accepted as spanning 1200 – 500 BC. The end of Moses' lifetime (around 1200 BC) coincides with the beginning of the Iron Age. The Iron Age spans the time of the Judges

through the time of the Israelite Kings (last to reign, King Zedekiah) when Neo-Babylonian conquerors took the Southern Kingdom captive in 586 BC.

Exploration was the first step into the **Bronze Age** as they searched for gold, copper, silver, tin, lead, and other metals primarily in veins or mine shafts. Once laborers were fully engaged in **digging mines**, as well as canals, ditches, and drainage pathways (underground sewers date back 5000 years), more rocks were recognized as a source of metal ore. Labor intensive quarry-type mines, using **axes, shovels, wheeled carts**, and many man hours, powered the transition into the **Iron Age** as did new inventions and better smelters. Beasts of burden (ox, buffalo/cattle, donkeys/mules, horses, elephants) hauled the loads.

The Northern and Southern Kingdoms of Israel were engaged in mining along with many other kingdoms. However, extracting iron from oxide or silicate ore required new inventions. Man had to find ways to increase oven temperatures, vent gases properly (both in and out of the oven), and recombine minerals to extract iron. Once mastered, however, higher temperature ore separation was possible.

Unless you are God, **FIRE POWER** needs oxygen fuel. Bellows were invented to increase the available oxygen around 1800 BC by the Babylonians and Hittites. To increase air flow, they used skins over pots or containers to push air. Balloon and fan-like bellows created a means to narrow and direct the flow (similar to a **nozzle**). Much later a freely-moving, air-pressure **valve** would be used to trap air using air pressure and flow directions. Bellows were feet or hand pumps, such as the one illustrated here; however, later waterwheel and windmill-powered bellows were invented. Wind-powered bellows only worked when the wind blew. A much later invention (1800's AD) would be needed to store wind or waterwheel energy.



Finally, the additional power to smelt iron came from a concentrated energy source and a little “chemical magic.” The key to both was carbon in the form of charcoal (now coke is used) and limestone (or bone meal). Coal increases the rate of burning energy (i.e. power). Limestone, a calcium carbonate like bones, releases CO and CO₂ gas at high temperatures providing the “chemical magic.” Carbon monoxide bonds with oxygen, silica, and oxide impurities to produce: iron, carbon monoxide/dioxide gases, and a calcium silicate slag (wollastonite).

GOT-IT/Apologetics:

Job 28:1-28 1-2 *Surely there is a mine for silver, and a place where gold is refined. Iron is taken from the earth, and copper is smelted from ore. Deuteronomy 8:7 ...For the Lord your God is bringing you into a good land, 9 ...a land whose stones are iron and out of whose hills you can dig copper.*

The Book of Job is considered one of the earliest writings of the Old Testament. During God's discourse with Job, the topics of mining, refining, and smelting were used to illustrate the search or quest for something valuable. It's clear from Job, Chapter 28, that God's intent is to lift a veil and expose truth. Long before the Iron Age would come to pass, God made iron's presence known.

In Deuteronomy 8, God tells of all the blessings of the Promised Land including iron stones, but He also warns about their potential to harm. God knew the future of iron smelting would transform both "work and war." While mining the earth to uncover God's treasures is an honorable pursuit, worthy of our labor; these "good things" are worthy of caution. How amazing and true are the Words of the Lord!

God's Word may reveal future events, but it always reveals truth. Iron was valuable. Prior to the Iron Age, iron often sold for higher prices than gold, silver, or copper and was either pure magnetite or part of a meteor. The iron industry built skyscrapers and intercontinental railways; but, it also revolutionized warfare. You see, the Word of the Lord endures forever.

REFLECTION/Devotion:

Malachi 3:2 *But who can endure the day of his coming? Who can stand when he appears? For he will be like a refiner's fire or a launderer's soap.*

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The Bible is a commentary on history, socioeconomic conditions, physical attributes of the earth and nature, and reflections on the character of God and mankind. Allusions to mining, refining, and metal working are common and provide metaphors for life. A refiner's fire removes or separates impurities just as a smelter oven is designed to do. Laundry soap is used to "capture and bind" impurities that rinse off with water.

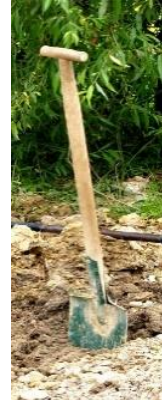


Slag and dross, like dirt, are often compared to the sin we allow to remain in our lives. The potter's hands, the shepherd's rod, the smelter's fire allude to the purifying aspects of being subjected to refinement, chastisement, or being molded into better, more useful vessels. These are befitting for the child of God.

Isaiah 1:25 *I will turn My hand against you, and thoroughly purge away your dross...*

REMEMBER THESE THINGS/Devotion:

God knows our needs before we do. Moses brought Joshua and the Israelites back to the land God promised to Abraham. This fertile land, with streams and springs, had stones of iron and copper. Stones of iron were of little value in that day. The Iron Age hadn't begun when Moses wrote down these words. God warns His people to remember where wealth, power, and strength really reside. Like the manna and quail, these were His provisions.



Deuteronomy 8:7-9, 17 *For the Lord your God is bringing you into a good land, a land of brooks of water, of fountains and springs, that flow out of valleys and hills; a land of wheat and barley, of vines and fig trees and pomegranates, a land of olive oil and honey; a land in which you will eat bread without scarcity, in which you will lack nothing; a land whose stones are iron and out of whose hills you can dig copper. ¹⁷ You may say to yourself, "My power and the strength of my hands have produced this wealth for me."*



"Redeeming time" refers to making the most of every opportunity and using time wisely, recognizing its value and the potential for spiritual growth and service (AI). To redeem, we must do something. Prayer is doing. "The prayer of the righteous is very powerful in its working." James 5:16b. Time is irreversible.

Ephesians 5:15-16 *See then that you walk circumspectly, not as fools but as wise, redeeming the time, for the days are evil.*