

The Liahona

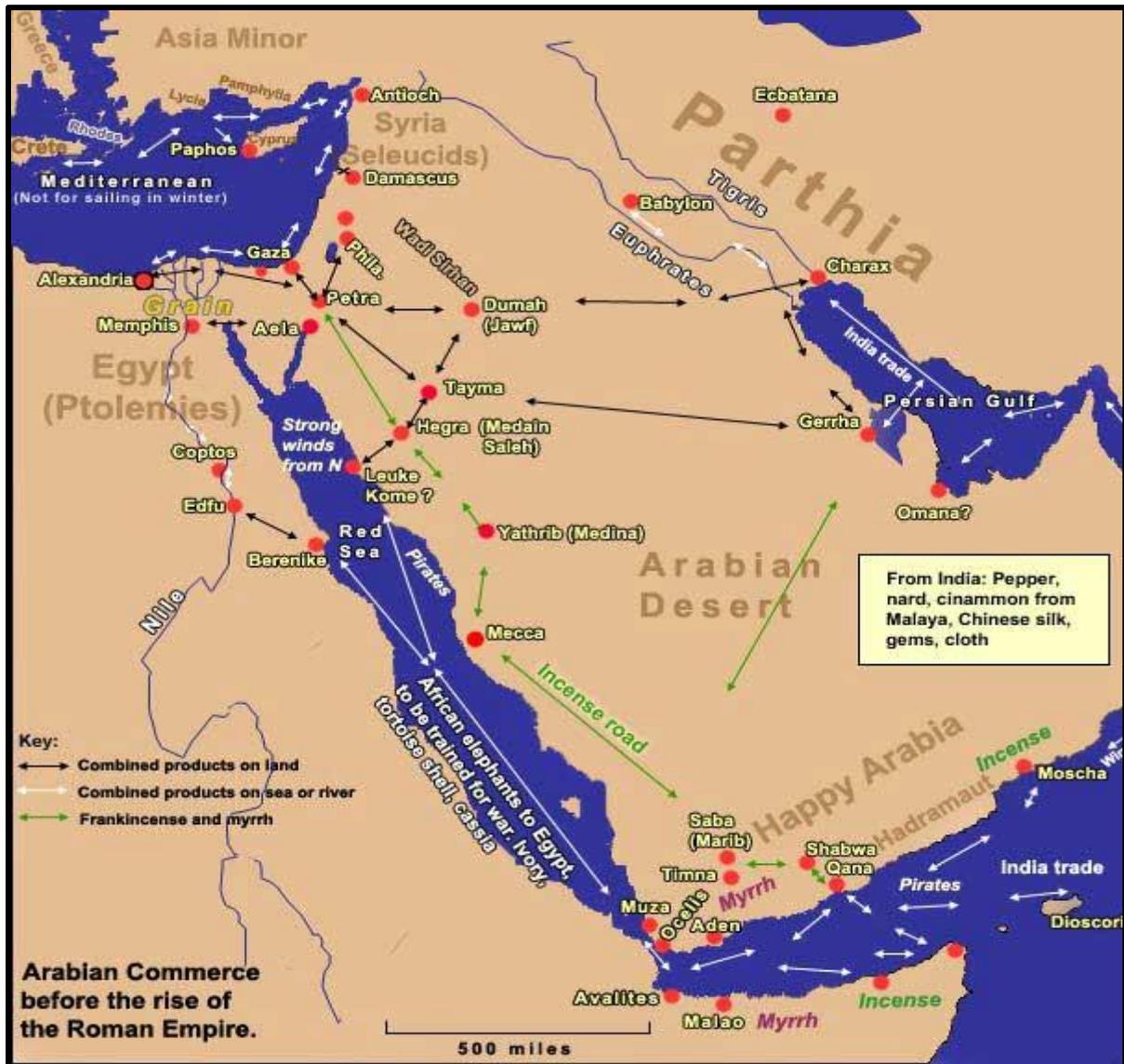
Miracles by Small Means

Chapter 6

CHAPTER 6

Knowledge of Magnetism
in Ancient Israel

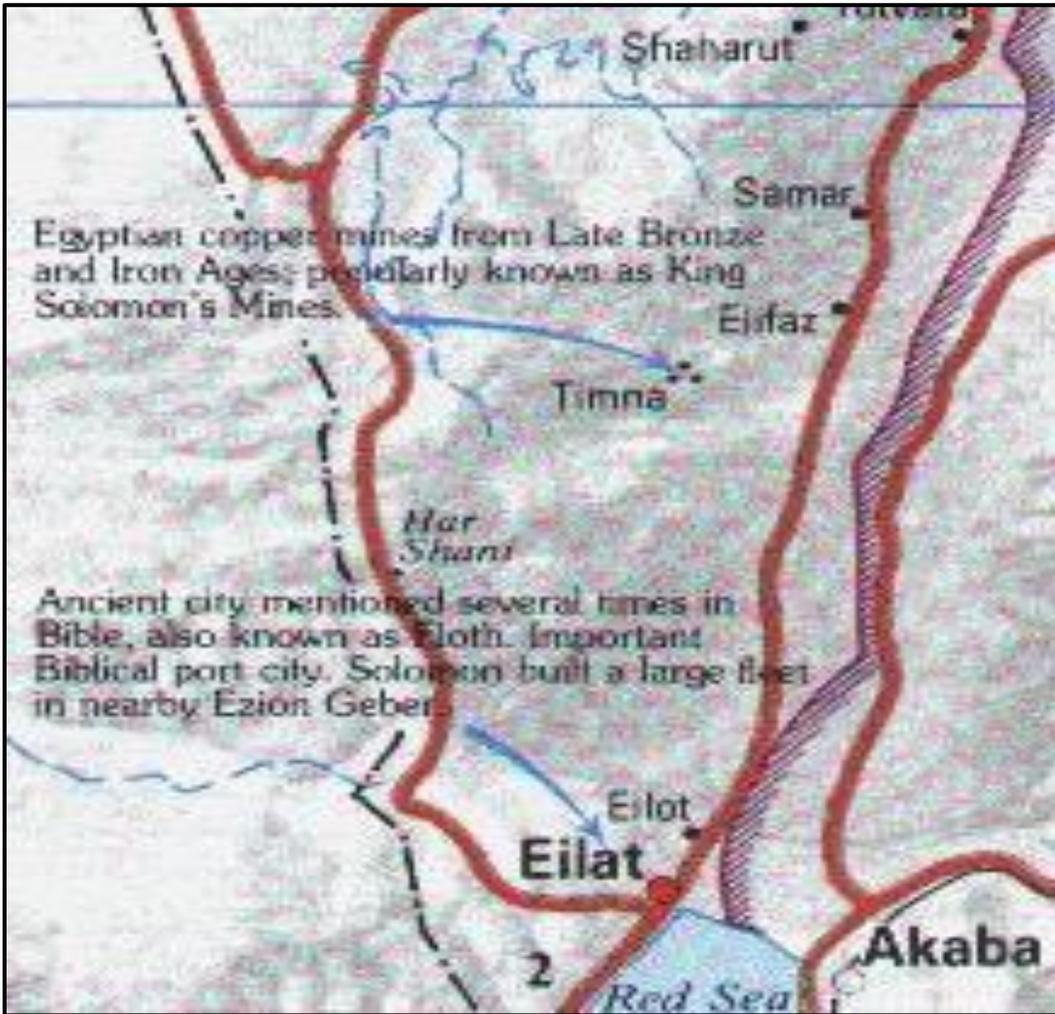
Chapter 6: Knowledge of magnetism in ancient Israel



Route of Solomon's ships to Ophir

950 BC

The scriptures (1 Kings chapters 9 & 10) record that in 950 BC, Solomon established trade to many distant places, but in particular, he opened up the Red Sea.



Solomon established a port on the Red Sea

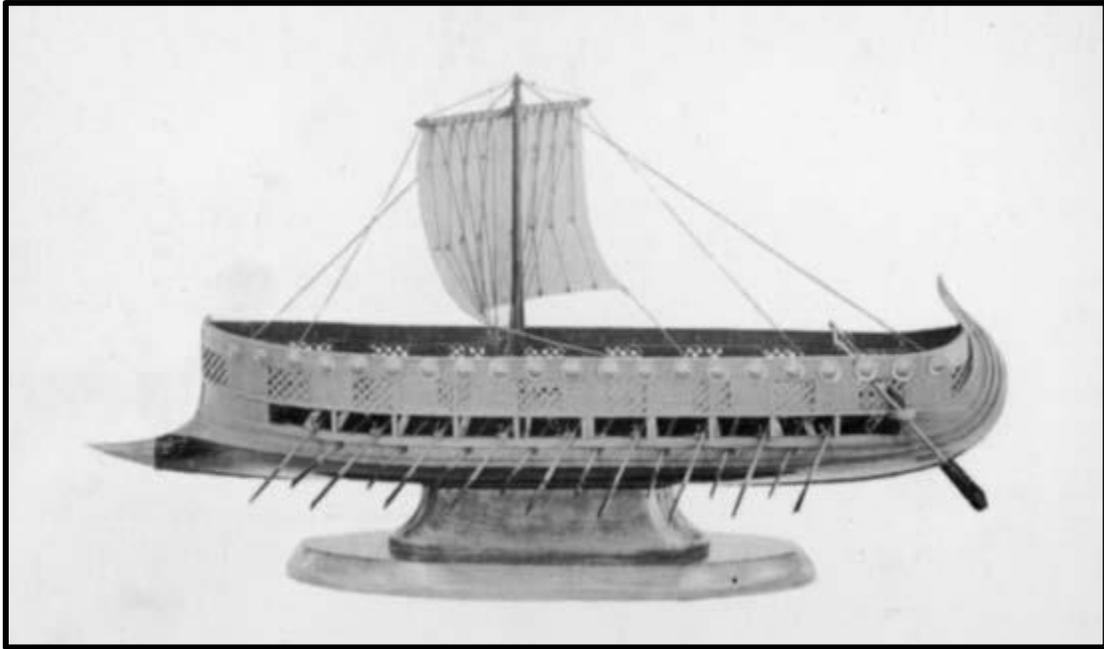
Solomon mined copper at Timna

Solomon built ships on the Red Sea with the help of Hiram, king of the Phoenicians. Solomon established copper mines near there in Timna with refining facilities using the principle of the Bessemer blast furnace. He established a port city Eilat on the Gulf of Aqaba, and built a large fleet in nearby Ezion Geber. Large iron nails and copper have been found in this area. From a Book of Mormon perspective, Solomon's port location, and his alliance with King Hiram of the Phoenicians would have brought all the metallurgical expertise of the Mediterranean to within a day or two's journey from where the Valley of Lemuel would be located.



The Frankincense Trail Southern Branch to Arabia & Indian Ocean

Solomon's ships helped ease the stranglehold of the Arabs on the Frankincense Trail that went through the desert to the Incense areas on the southern coast of Arabia. Some of their voyages lasted three years and were said to have gone to "Ophir" bringing back immense wealth in gold, etc. This combined effort of King Solomon and King Hiram inspired awe from all the wealthy incense rulers. The Queen of Sheba, who initially came to visit Solomon with the intention of impressing him with a gift worth three million dollars, was shocked when Solomon's gifts in return absolutely dwarfed what she had given him.



Model of a Phoenician Bireme Ship

Solomon's ships took so much time and brought back so much gold that some have claimed that they traveled to the Americas, to the same locations that provided the Incas their overwhelming wealth in gold. The regular Phoenician ships at the time, called biremes, were not well-suited for such long voyages. This necessitated the building of ships referred to as "ships of Tarshish," which were more suitable for carrying large freights and venturing on long voyages. It is also reasonable to suppose that in evaluating Phoenician seafaring prowess, that Solomon and Hiram would not have risked such immense investments on matters of chance.



King Hiram of Tyre provided Bronze (brass) for Solomon's Temple

Interestingly, the Phoenician culture brought bronze metallurgy to Israel in addition to gold. King Hiram was responsible for providing and working the many objects of bronze in Solomon's Temple. Thus Nephi eventually could have had the metallurgical materials and metallurgical knowledge required to build the brass ball called the Liahona.



Etruscans 5th to 8th Century BC

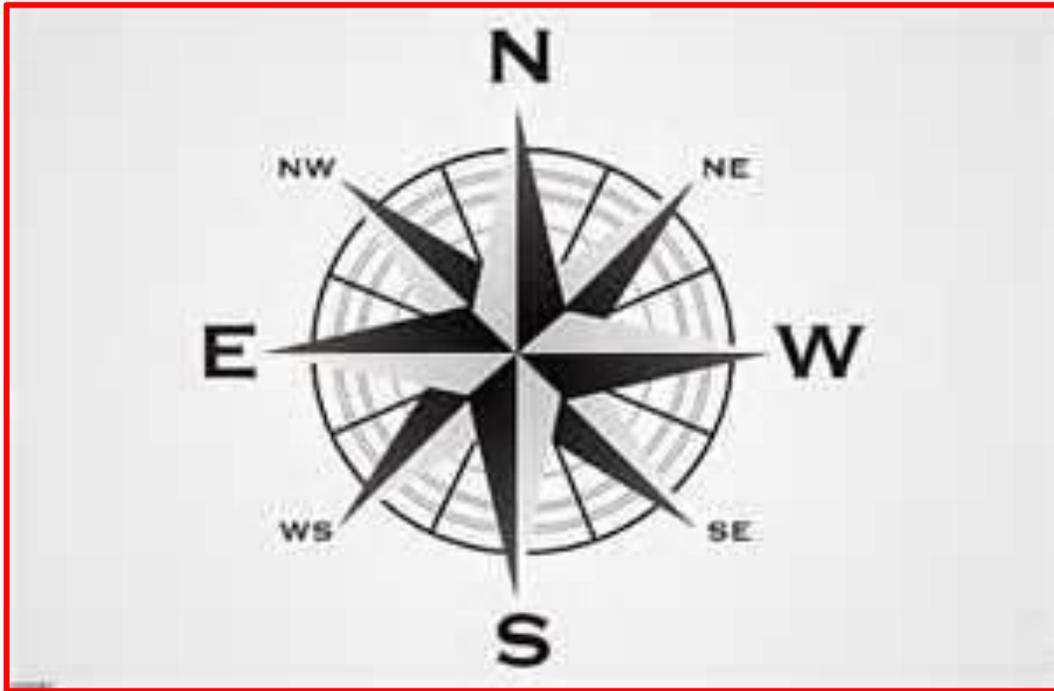
The Phoenicians also brought the Etruscan culture from the Mediterranean which was also famous for their metallurgy. The Etruscans were located in what is now Italy during Nephi's time.



Gold Plates 500 BC

Inscriptions in Etruscan and Phoenician

These inscribed Etruscan gold plates date to about 600 BC.



16-Part Compass Windrose

Origin Linked to Etruscans (Phoenicians?)

Interestingly, the Etruscans have also been linked with the origins of the sixteen-part directional windrose on the compass.



Northern Trade Routes From Israel

Extended to Greece

A seemingly final factor that would relate to Nephi's possible construction of a magnetic Liahona would be the availability of magnetic lodestone. Interestingly, the northern parts of the Frankincense Trail extended from Arabia into the countries that bordered the northern shores of the Mediterranean.

The Historical Greek Claim

Magnetic lodestones were first discovered
abt 600 BC in Magnesia, Greece

The word “Magnet”
is derived from Magnesia

The word magnet comes from the fact that the Greeks claimed that magnetic lodestones were first discovered in Magnesia, in central Greece about 600 BC. If this was the case, then this knowledge of lodestone would have been passed along down the Trail to Israel.

Book of Job 28:18 (abt. 600 BC)

For the price of wisdom is above rubies.

The topaz [or lodestone] of Ethiopia shall not equal it.”

Interestingly, in the Hebrew scriptures, in the Book of Job, written about 600 B.C., there is written the following: QUOTE "For the price of wisdom is above rubies. The topaz of Ethiopia shall not equal it." (28:18) It is understood now that the term "Topaz" in this verse is NOT the topaz stone that we have become familiar with in modern times. It actually was a form of lodestone. The renowned Old Testament commentator, Adam Clarke made the following comment on the topaz or lodestone mentioned in this verse.

It is understood that the wisdom which aided man to make this discovery [of lodestone] and to apply it to the purposes of navigation, on the account of its polarity, is that wisdom which is above the price of rubies. The attractive properties of lodestone MUST have been observed from its first discovery; and there is every reason to believe that the magnet and its virtues were known in the east long before they were discovered in Europe.



Jewish High Priest's Breastplate (12 gems)

Topaz = Olivine or Lodestone = "Tarshish"

In the Jewish High Priests breastplate, there were 12 gems representing the 12 sons of Israel. One of those stones was a lodestone. The Hebrew (masoretic) name for the stone was "tarshish," which interestingly was also the name given to ships traveling to distant destinations.

Summary of Cultural Knowledge Of Magnetism

So in summary, as we take into consideration the cultural knowledge of magnetism in China, India, Arabia, Phoenicia, and Israel, does it seem plausible that Nephi would have been in a position, chronologically, geographically, and culturally, to produce a magnetic Liahona with inspiration from the Lord? Before you answer, I would like to say a little bit more relative to a magnetic Liahona being constructed by QUOTE "the hand of the Lord."



Lodestone
(Magnetic Magnetite)

Scientists have noted that only a small amount of the iron oxide termed "magnetite" present on Earth is found to be magnetized. This naturally magnetized magnetite is what we call lodestone. While magnetite is attracted to a magnetic field in a similar manner as iron, most magnetite does not tend to become magnetized. It is not like lodestone. So one may ask, "Why such a difference?" What causes this difference? Those are good questions, even today.

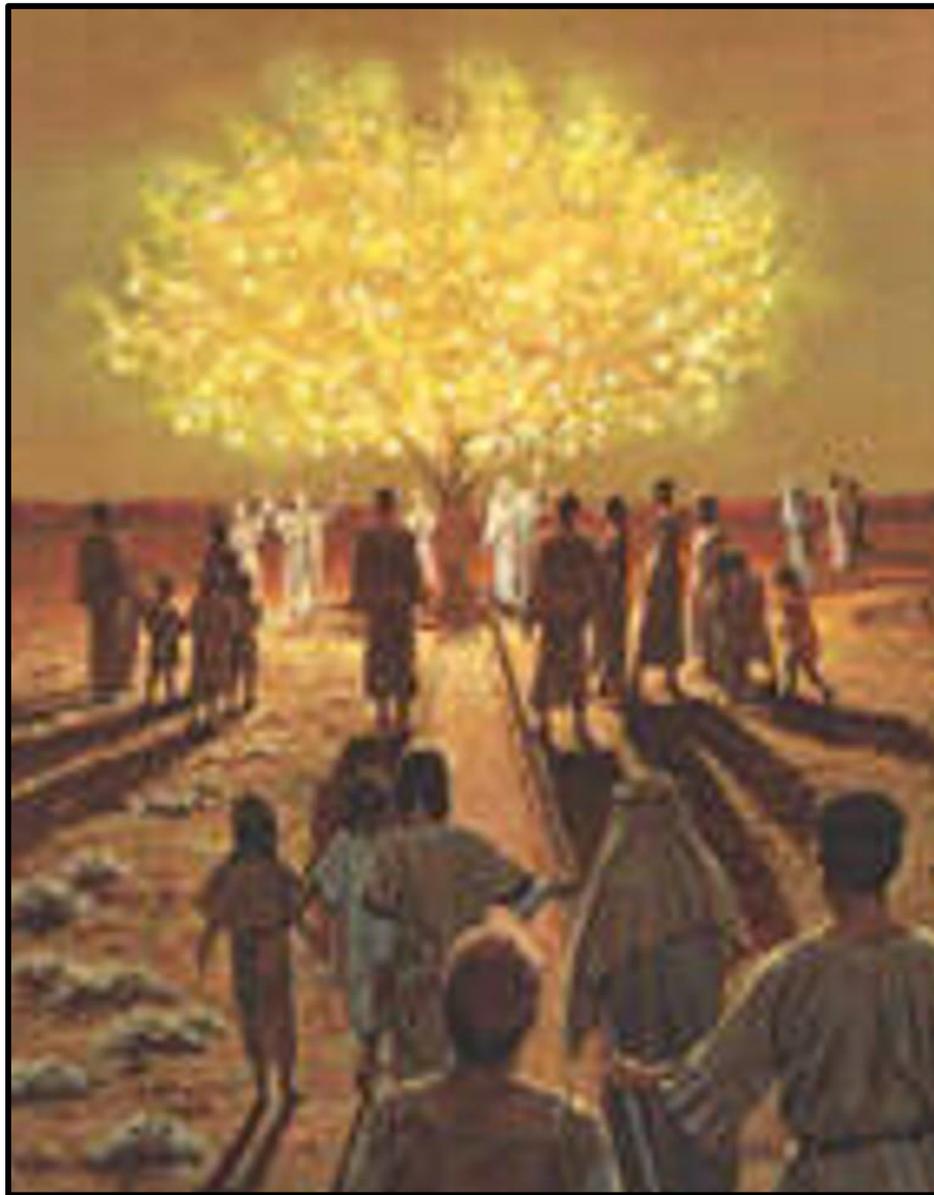


Lightning = Power and Light Converts Magnetite to Lodestone

The process by which lodestone is created has long been an open question in geology, but scientists do have clues. They have found that only magnetite with a particular crystalline structure remains magnetized and thus becomes a magnet. Some scientists have theorized that this crystalline structure is created when magnetite is struck by lightning. This theory is bolstered by the fact that most all lodestone is found on the surface of the Earth, not buried at great depth. Thus the magnetic power in lodestone would be due to the power and light coming from the heavens. Interestingly, the ancient Greeks and Egyptians believed as much; that is they believed that the power of lodestone was indeed celestial. Over time, men have used and studied the principles of magnetism. The attractive power of lodestone can now be increased a thousand times over in magnets. Electromagnetism has now come to be understood as the power and light that is not only essential to our modern way of life, but to life itself.



Now when we read the Bible or Book of Mormon, we come across certain symbolic phrases-- phrases that replace details with symbolism. For example, the word of the Lord is often referred to as QUOTE "the sword of truth," because truth cuts through a myriad of falsehoods and lies. Thus a sword can be symbolic



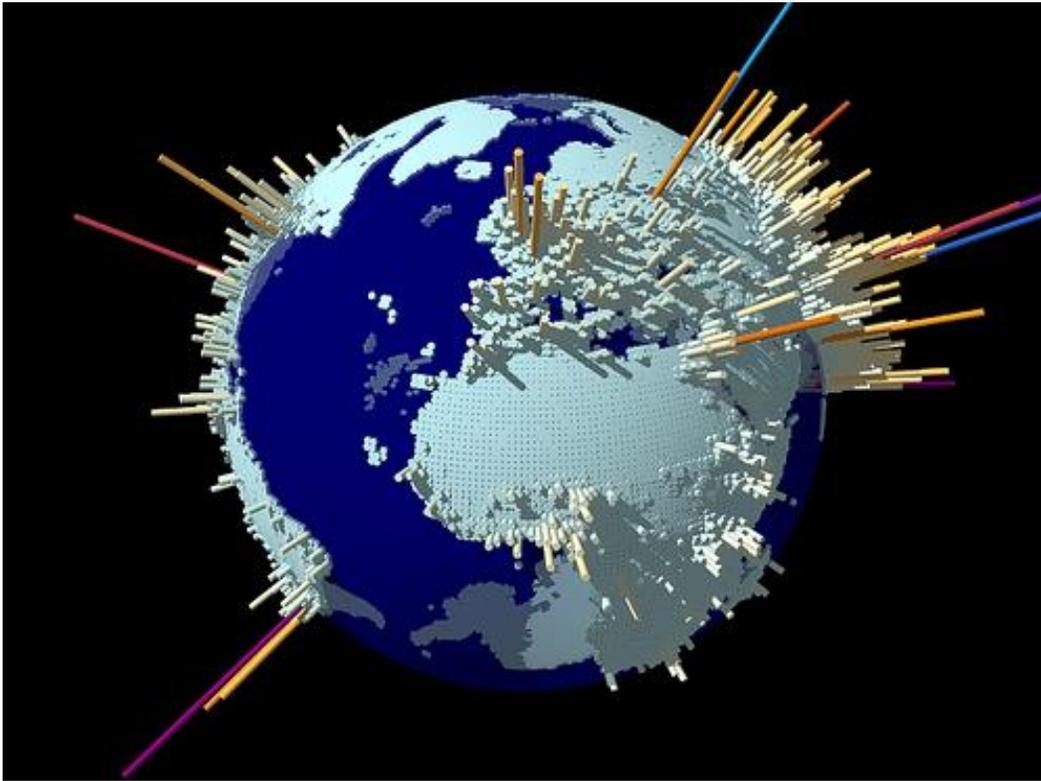
Holding fast to the iron rod

Obeying the word of the Lord is sometimes referred to as QUOTE "holding fast to the iron rod," because by doing so the symbolic rod will safely guide us through a myriad of problems that temporarily block our vision.

A Liahona

Miracles by Small Means

Another symbolic phrase is QUOTE "the hand of the Lord," which is used to explain the overall power or force behind a myriad of actions or events. Thus, if you were to scripturally explain the creation of magnetic lodestone, or the resultant use of its magnetic power, you could rightfully say that lodestone was "prepared by the hand of the Lord." This is the same phrase used to describe the power of the Liahona. So I hope you don't condemn me too much for proposing the idea that the Liahona could have functioned, in part, by the use of a small magnetized iron rod, supplemented by a few words of the scriptures. Does not Alma say that the miracles related to the Liahona were created "by small means."? (37:41)



The Human Family Covers the Earth

In a way, as a member of the Church you can be compared to a magnetic Liahona. First of all, you are human--part of a family of humans that cover the earth--much like iron or magnetite.

But you are not like every other human, you have been changed by the light and power of God, much like lodestone. As a member of Christ's Church your inner spiritual structure is more connected---connected by crystals of principles and covenants. While other humans might be attracted to the gospel for short periods of time, most do not sustain that spirit because they lack your spiritual magnetism, or spiritual structure. The crystals of the gospel have not formed inside them. But you, on the other hand, have become a true gospel magnet, gathering family members, church members and friends around you, while pointing the direction to go. By relying on the words of God and the Prophets, you have become a Liahona. Indeed you can say that you were "prepared by the hand of the Lord."

END OF PART 1