

The Liahona

Miracles by Small Means

Chapter 3

CHAPTER 3
Knowledge of Magnetism
in Ancient China

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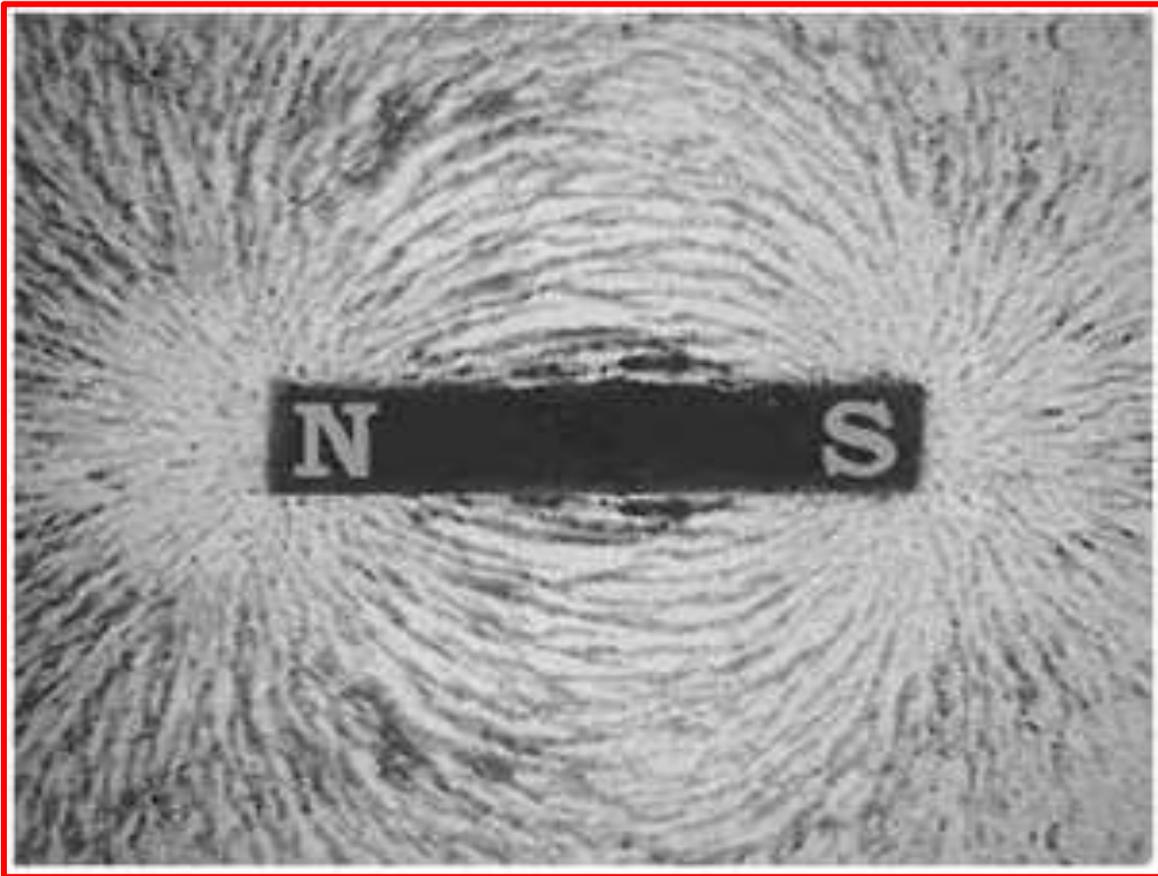
Spoon Compass 1117 AD

The most oft-repeated assertions that I have come across in my studies about the compass are that for Europe, the mariners compass was first referred to by Alexander Neckam in the year 1190. And the first reference to a mariners compass or compass spoon in China was in Zhu Yu's "Pigzhou Table Talks" in the year 1117. Yet there seems to be confusion on whether we are talking about an "official" mariners compass, or just the ability to tell direction by the polarity of iron or naturally occurring lodestone. Let me first address lodestone.



Magnetic Lodestone with Iron Filings

One of the particular oxides of iron is called magnetite. The chemical formula is Fe_3O_4 . Yet scientists have noted that only a small amount of the magnetite present on Earth is found to be magnetized. This naturally magnetized magnetite is what we call lodestone.



North-South Polarity

Magnetism implies North-South polarity, and this can be transferred to iron or steel by placing the metal in a north-south direction and rubbing it with lodestone.

Various Dates of Magnetic Use in China

101 BC – Chinese ships reached India with a compass

221 BC – The compass was first made during Qin dynasty

271 BC – Chinese mathematicians invented the compass

4th Cent BC – First mention of directional compass in print

Now we know that lodestone was discovered and used in ancient times in China, but when? I have previously stated that AD 1117 has been accepted by some for the origin of the mariners compass in China. But other accounts differ dramatically in dating origins for magnetic use in China. For example:

One account notes that magnetism in China was first mentioned in **AD 121** when Hin-tchin compiled a dictionary called "Choue-Wen" in which it was said that lodestone communicates polarity to iron.

Another account records that in **101 BC** Chinese ships reached India with the help of a compass.

Another account records that in **221 BC** the Compass was first made during the Qin dynasty.

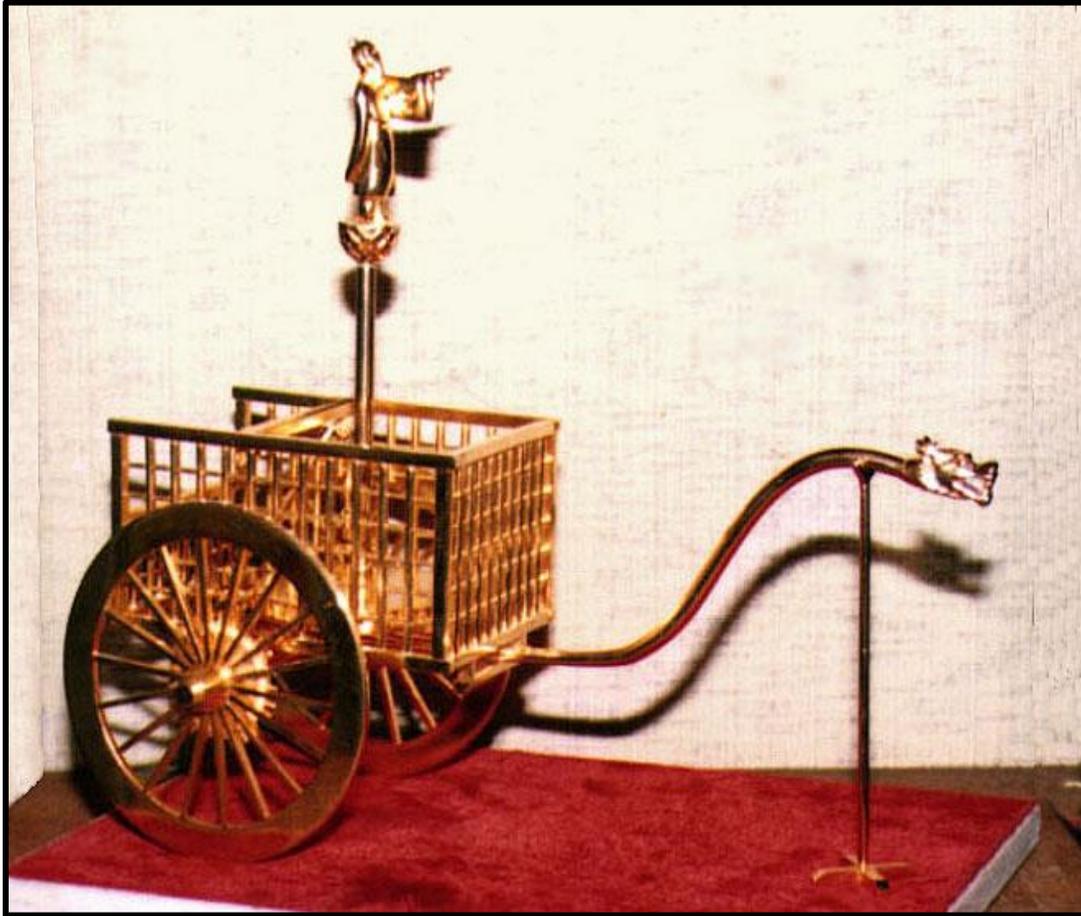
In another account it is recorded that in **271 BC** Chinese mathematicians invented the compass.

Still another account records that in the **4th cent. BC** - first mention was made of a directional magnet in print in "The Book of the Devil Valley Master."



Alexander Humboldt

Renown world traveler and historian Alexander Von Humboldt wrote that in **1110 BC** - Tcheou Koung taught the use of the magnetic needle and compass to ambassadors from Tonquin. The instrument was called "Tchi-nan" (or chariot of the south)



Hoang ti's chariot
Magnetic south-indicating pointer
2700 BC

It is recorded that about **2700 BC**- Emperor Ho-ang-ti placed a magnetic figure with an extended arm on the front of chariots. This magnetic figure swiveled to point to magnetic south in order to know where they were going at all times and conditions. So is it plausible that by 600 BC, China could have known the principles of a magnetic compass?



Chinese Feng Shui Compass

It might be interesting to note here that by 3000 BC, the Chinese began orienting their buildings 10 degrees from true north in order to achieve harmony according to a philosophy termed Feng Shui. Feng Shui compasses were the precursor to the magnetic compass. Intriguingly, somewhat like the Liahona, the Feng Shui compass had writing on it that corresponded with the directions given.