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Homework 3 Reading

Lodestone and Needle:

The modern day marine compass commonly used in the outdoors has quite an interesting history. Beginning in 2700BC, a rudimentary compass like tool was first created by a Chinese Emperor to find his way through foggy lowlands and track down his enemy. This compass was created from suspended pieces of magnetic stone, mounted in frames on wagons. Later advancements were mad by an anonymous Chinese investigator, who used a lodestone to magnetize an iron wire or needle. Although the magnetic effect lasted briefly, it would quickly be put into a straw and made to float on water, showing the direction.

As sailors and navigators began to cross vast distances oversea, they had to find a more reliable way of finding north, which didn’t involve the careful floating of a magnetized wire while in potentially rough seas. Hence, a pivot pin was designed where a needle could be mounted and allowed to rotate freely, which was significantly easier to use. Along with a compass card, which was essentially a sheet of paper with the bearings, the needle could easily be used to show direction.

The Self-Sustaining Dynamo in the Earth’s Core:

The original hypothesis as to the relationship between the earths magnetism and the earths rotation was the Earth rotated because it was magnetic, which was made by William Gilbert. After that, P.M. Blackett made an opposing prediction which won him the 1948 Nobel prize, which was that the earth was magnetic because it rotated. Unfortunately for him, the experiments he conducted, and phenomenon such as the reversal of poles wholly disproved his theory.

By using earthquake waves, we have been able to learn a lot about the earth, such as the fact that there is a dense liquid core, containing a solid inner core, which is probably made of molten iron. This molten core could explain the Earth’s magnetism, which would derive from fluid motions in the core.