



- Magnetic properties of bulk materials
 - Dia-para-ferromagnetism
 - Susceptibility
 - Applications
- Magnetic properties of nano-objects
 - Moments and Curie temperature
 - Energies in competition
 - Applications
- Electron holography
 - Principle
 - Examples

<http://www.amazon.fr/Magnetism-Fundamentals-Etienne-Tremolet-Lacheisserie/dp/0387229671>



Figure 1.1 - (a) A "directional spoon" - (b) A "directional fish"
(drawing by L. Mouveau)

Magnets were discovered by Egyptians 5-6000 years ago. The first time when they are explicitly mentioned in a text is in around 700 before Christ when a Chinese writer spoke about the lodestone – ferrite, an iron oxide, or the stone that attracted iron. The iron was then mainly pieces of meteorites. The first compass, a directional spoon was described during the 1st century before Christ, it was made of iron and its magnetisation was initially oriented by cooling it from red when oriented to the north.