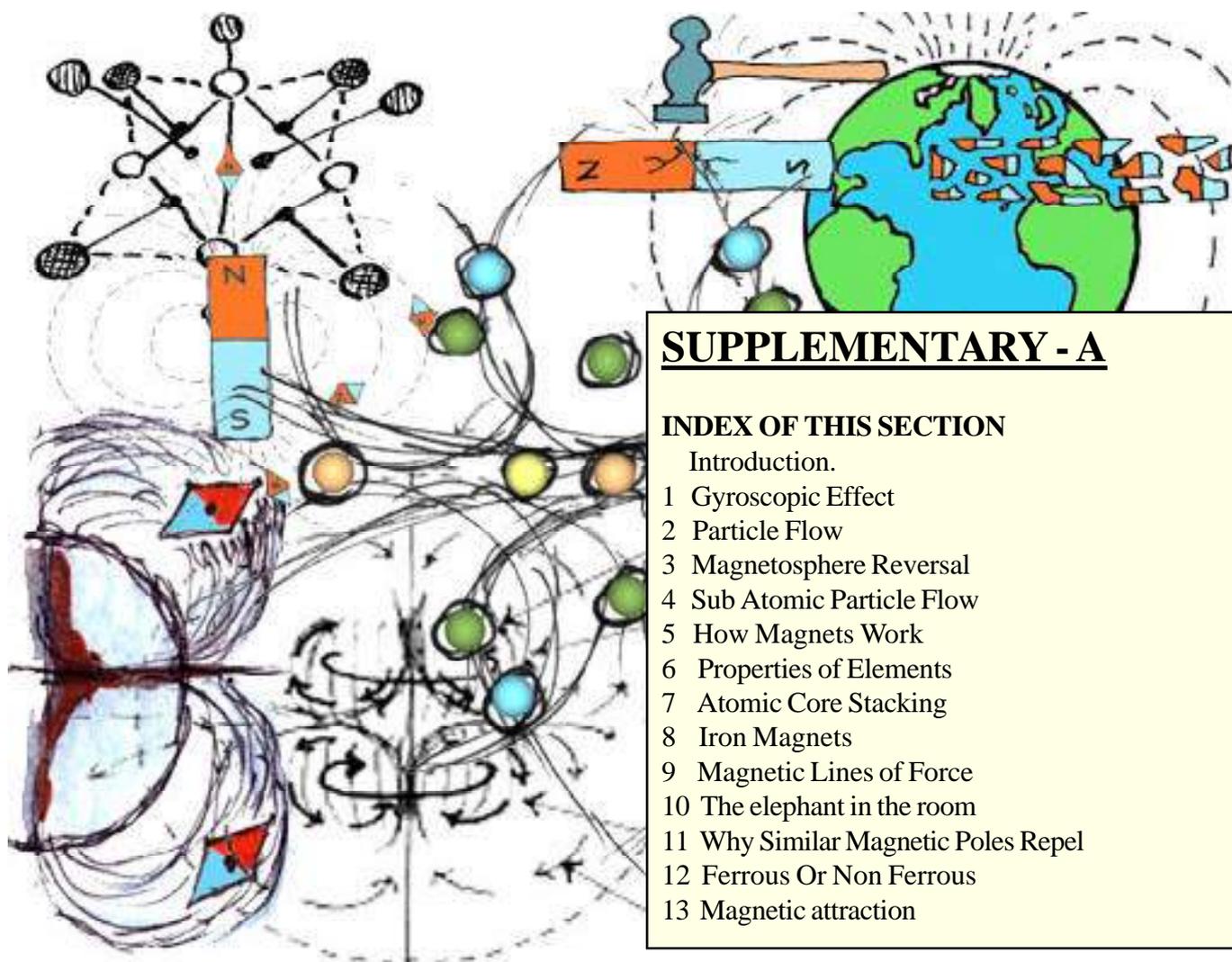


WHY NORTH IS NORTH AND HOW MAGNETS WORK

In this supplementary section we are going to look at the phenomenon of magnetic polarity and how magnets work. Why the north pole is the north pole and why it is different from the south pole. What gives magnets there properties and why do similar poles of magnets repel each other.



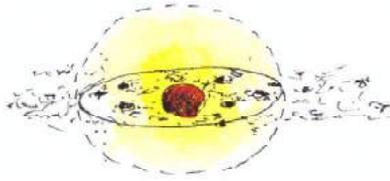
INTRODUCTION

These papers are about Sub Molecular Interface Bonding, which is an explanation of the mechanics of atomic formation, structure and linking. It looks at how sub atomic particles form into atoms, how simple atoms form large atoms and the way atoms bond together into molecules, the foundations of matter.

The papers have been split into sections or books primarily to keep the file sizes down to an acceptable level so people with slow internet access can easily download the files. It also means you can download just the parts you want. See **“Introduction and Full Project Index”** for full information.

Issue 1 - 20 Nov. 2015

Why North North and How Magnets Work.

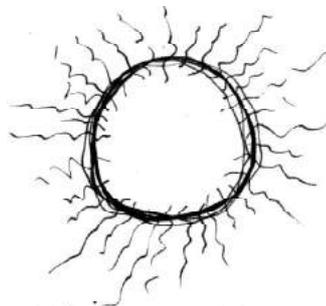


In the primary sections of these papers, “Sub Molecular Interface Bonding” in Book 2, we looked at the subatomic world that surrounds us all. Then in Book 7 saw how eventually these particles form into galaxies, solar systems and planets.

Here we have to focus down onto the planetary model and see how the vectors that produce gravity also produce the sub forces that we describe as Magnetism.

Now any large body of atomic matter compresses itself by mutual attraction of the atomic structure of a collective of the atoms with in it. This bundle of energy attracts energy nodes from the surrounding Dark Energy cloud, it needs this energy to maintain its coherence or it will fall apart and be absorbed back into the cloud.

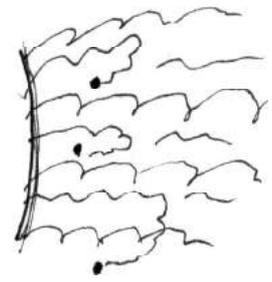
As seen in Book 7 this attraction has a halo bubble where this force is active, however the attraction is offset by the emission of excess high energy particles being thrown out of the mass as it tries to loose energy.



high energy particles leave in all directions

Even though these high energy particles are being pushed out at massive speeds, not all the particles have enough energy to escape the primary gravity of the body. Some will escape the atomic mass only to loose energy to the incoming particles, these will slow and then fall back into the body mass.

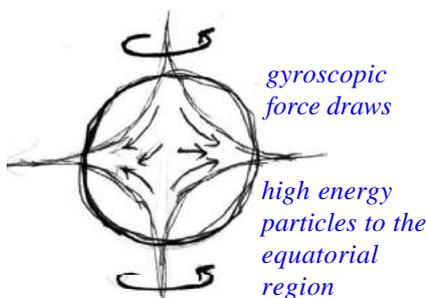
Now we need two things now before we can see the beginnings of magnetic. The first is gravitational pull mentioned above and the second, which is of profound importance is that of spin.



Atomic attraction draws some particles back

Gyroscopic Effect

Why is spin important, because this is where the North and South poles come from and what happens on a global scale happens in miniature inside every small bar magnet.

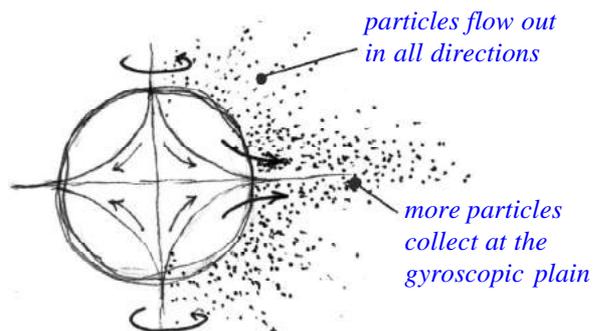


When the large gravitational body starts to rotate gyroscopic forces begin to take hold. When such body rotates the atoms and the trapped sub atomic particles rotate around an imaginary pole running through the centre of the object. The atoms nearest this imaginary pole rotate much slower than the atoms further away. Due to a process called the energy vector, the energy of any given atom is the distance from the pole multiplied by the distance travelled. This simply means the highest energy point on a sphere is around the equator, the fattest part of the rotating object. This is the gyroscopic effect.

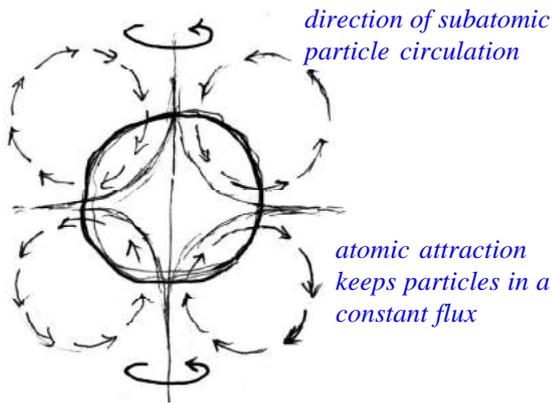
How does this affect the sub atomic particles. Well the high energy sub atomic particles being generated at the centre of the mass want to escape. To do this they will take the path of least resistance.

Now atoms that have more energy vibrate more and spread out forming a less dense mass. As the atoms near the line of the pole have less energy they provide a more difficult path for the sub atomic particles to move through, the result is that most of escaping sub atomic particles flow outward around the equator.

This is almost like a disk of high energy sub atomic particles moving outward from the equator.



Particle Flow

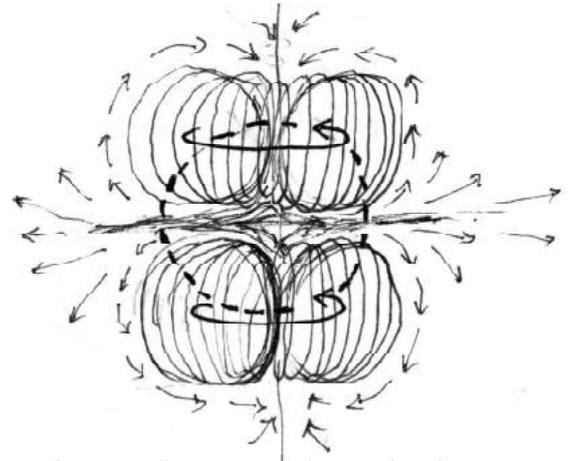


This is where it gets interesting. As we said earlier some of these particles fall back into the body where they have come from. Now the particles falling back around the equatorial ring are meeting a far more energetic particles flowing out.

As was the case when they were trying to get out they again take the line of least resistance when trying to get back in. They move sideways away from the outward equatorial flow, they are then caught by gravity and are pulled back skimming over particles coming out to the point where there is the least outward flow.

This point is where there is least movement of the atoms and thus escaping particles, the point where the imaginary pole projects out at the North and South of the body. The sub atomic particles re-enter the mass and are reprocessed to rejoin the flow from the equator. This process forms a continuous circular flow of particles through and around the body at both the north and south sides.

If you could see just the particle flow it would be like two doughnuts rotating round one on top of the other. This is the magnetosphere and the key point about this flow it is that the north and south doughnuts are not the same because they are rotating in the opposite directions. It is this point that makes the North and the South poles different.

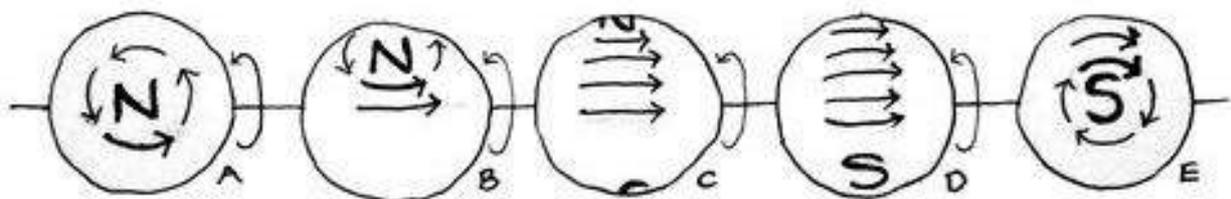


sub atomic flow patterns form a doughnut shaped rings each side of the gyroscopic plain

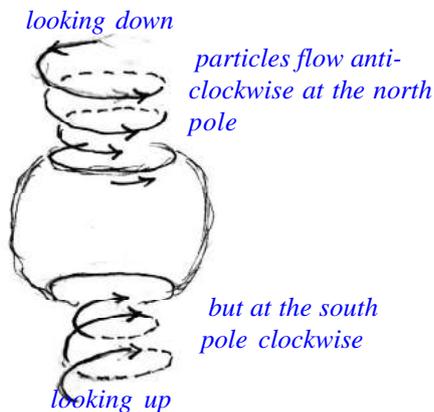
This is a difficult concept to get your head around so we will deal with this concept now for it is the most important fact about the whole process.

Magnetosphere Reversal

Take a small ball, a ping pong ball is ideal, the push a piece of wire through the ball from one side to the other. With the wire sticking out the left and right sides put the letter N on the top with a big marker pen, turn the ball over so the N is on the bottom, put the letter S on the top. This is the north and south poles of your planet, the wire is going through the equator.



Now starting UNDER the N of the north pole, draw an arrow showing the direction of the earths spin, an arrow pointing to the right. Now draw three more arrows around the N all pointing head to tail forming a circle round the N. This shows the rotation of the earth. (a) With the N facing you and the first arrow pointing right turn the top of the globe away slightly and draw another arrow below the first one also pointing to the right the same direction as the first. (b) Continue doing this (c and d) until you get to the S of the south pole. Draw your last arrow just ABOVE the S. This arrow is still pointing to the right showing the direction of rotation.



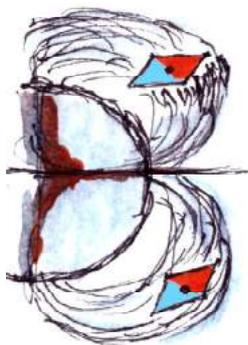
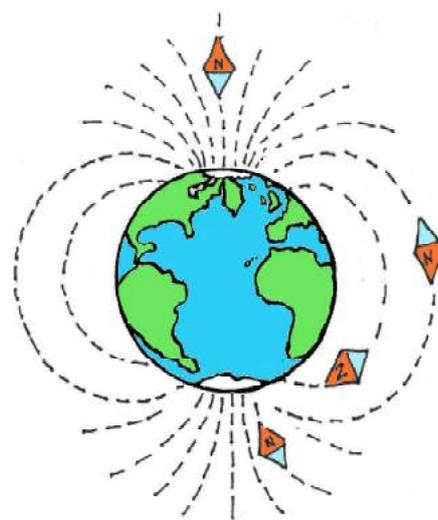
Now again put a another three arrows going round the S pointing in the same direction as the last arrow drawn until they meet back at the first arrow forming a circle.

You will now notice that the direction the arrows are circulating is opposite to that of the north N pole. Keep flipping the ball over using the steel rod and it becomes obvious the rotation is reversed. Hold on I here everyone saying its the same rotation form a different perspective. This is true the same rotation but a different dynamic.

Particle Flow Dynamics

Think here of cyclones, in the northern hemisphere spin anti clockwise but in the southern hemisphere they spin clockwise. The sub atomic particles forming the top doughnut are rotating anti clockwise and in the bottom doughnut clockwise. This process differentiates the north pole from the south. The effect of this counter rotations is the sub atomic particles are fall back into the body core anti clockwise at the north of the planet and into the core clockwise at the south.

When you use a compass to move round the globe the North point of the needle is aligning with particles rotating north in the northern hemisphere, but as you pass the equator the needle is not longer pointing north, it is aligning with particles rotating South and the it is the south end of the needle which is being attracted south rotational system. It only appears as if the needle is still pointing north.

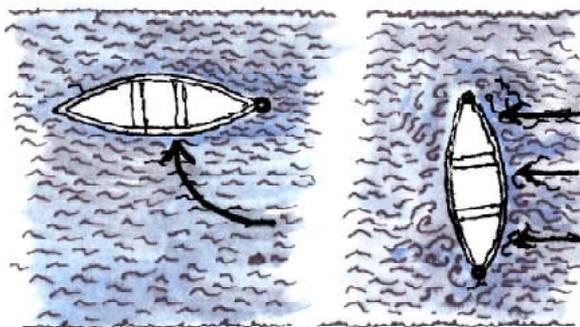


a compass swings to follow the flow of particles

In reality the north end of the compass needle is the south end of the magnetic field of the needle as the north attracts the south as with two magnets. The earth however is not a magnet, the magnetism in the needle, as in any magnet, is simply aligning its self with the particle flow around the global field which is the solid mass of the planet.

This is not however to say there is no magnet mass with in the earth, any atoms magnetic potential will if the conditions are right will tend to try to orientate with the particle flow with the body mass. They do this to reduce resistance because is we have said before all atomic material wants to loose energy and magnetic atoms have the unique property of orientation.

Think of a long boat anchored in a wide river. It is anchored at each end across the flow of the river which is trying to push it down stream with all the force of the water along the full length of the boat. If the river were a particle stream the boat would heat up. However if we cut one of the anchors the boat will swing round with so that only a narrow end is facing the flow, its resistance will be lowered and so heat up less. Certain atoms have a structure that make them want to follow the flow.



a boar anchored in a river will want to point in the direction of flow where there is less resistance to the water

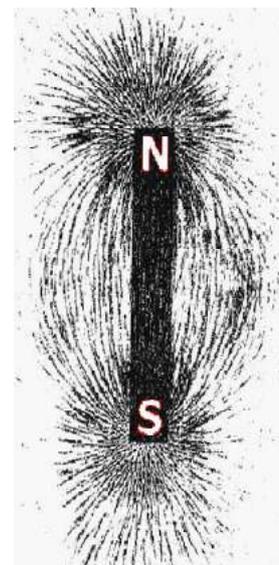
Sub Atomic Particle Flow

This differentiation between the north and south of rotating bodies is a great importance to all bodies and galaxies in the universe. However here we are not looking outwards to the stars, we are looking inwards because this north south divide is also of great importance at the atomic level of atoms. It is the very stuff of Magnets.

How Magnets Work

It might come as a surprise that magnets do not work by pushing around sub atomic particles. The lines of force that we observe in science class at school, where we sprinkle iron filings onto a bit of paper held over a bar magnet, are not lines of force they are lines of least resistance. So its all very straight forward, well not quite.

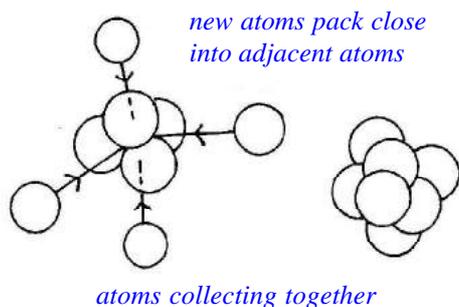
The mechanics of it are fairly simple once you understand the what is going on inside the atoms, but to do this we must understand a little about atomic particles and sub atomic bonding. This was dealt with in Book 3. However we will outline the basics again just enough to understand the principle of particle atomic shape stacking.



Properties of Elements

The elements or primary atoms are all made up of atomic particles held together by the actions and reaction of surrounding sub atomic particles. Primary elements, that is those elements that are listed in the periodic table, are made up of a number of core particles held together by the actions of sub atomic particles.

Simple atoms with very few core elements (protons and electrons) produce no discernible flow pattern, sub atomic particles bounce off and through them in any direction. It is only when the core elements get bigger that they have a specific effect on the surrounding sub atomic particle flow. This is a result of core stacking, the way the core elements bond together.

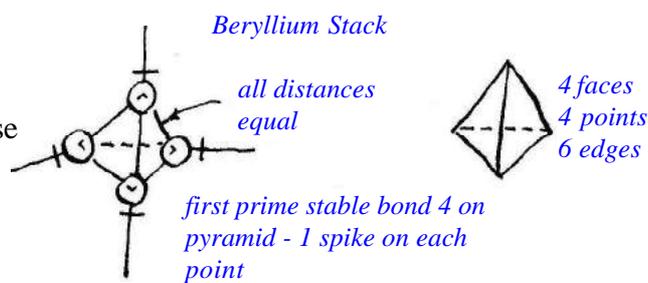


Atomic Core Stacking

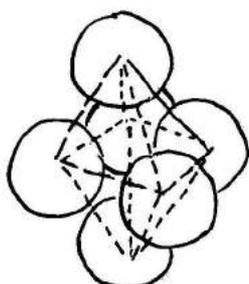
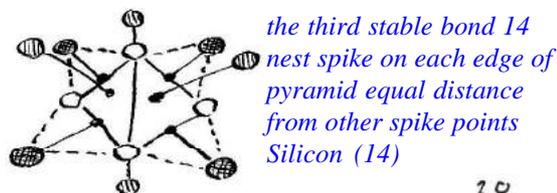
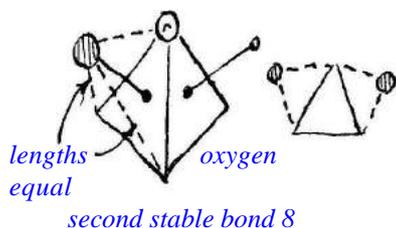
Nature is very efficient, if you take a drop of water and place it in space it will form into the most efficient shape a sphere. A similar thing happens inside the core of a atom, the core will try to pack itself into the most efficient shape consistent with stability.

The core elements are bound together by passing sub atomic particles between each other. To be a stable element each core element has to have at least two connections to two other core elements, if it has three connections it is very stable.

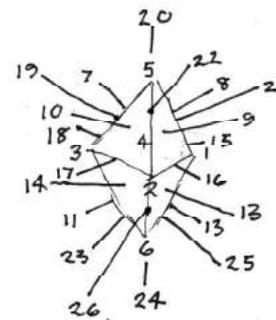
To achieve these connections the cores stack in different defined patterns. The simplest three core elements, the triangle (lithium) the next being four core elements, a triangular pyramid (tetrahedron), all of whose faces are equilateral triangles.



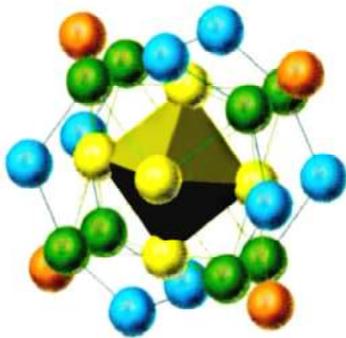
This stacking arrangement continues with all the elements, the one we are interested in is iron.



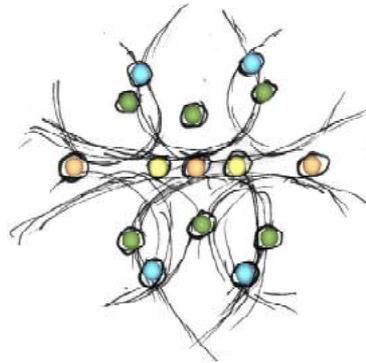
Iron has 26 core elements and is arranged around an eight sided diamond shape. Two four sided pyramids joined at the base. The core bonds hold round a void with the top half mirroring the bottom. This stack can add one core at the top and one at the bottom while retaining symmetry. This reinforces the orientation of the next two elements , cobalt (27) and nickel (28).



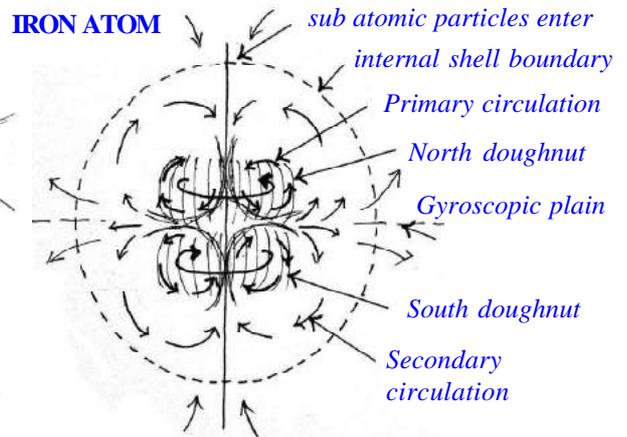
Because of the symmetry at the core of iron it rotates around its vertical axes extending through the two points of the pyramids. This causes a slight but significant gyroscopic effect and subsequently a particle flow similar in arrangement to that of a whole planet. Thus an atom of iron has a north and south allowing it to have a natural alignment effect.



Symmetry of Iron atom

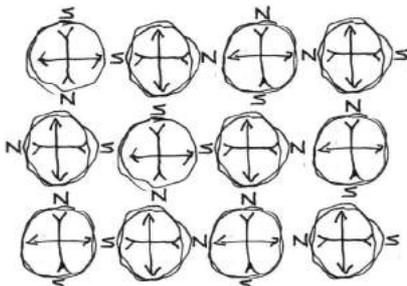


Front - showing particle flow



Iron Magnets

The symmetry in the iron atom and its rotation cause the sub atomic particles to mimic that of the planetary body, it is however more complex as there are electron shells moving around the core. These shells create a secondary circulation within the shell also affecting the resonance outside the shell. Particles act as if the atom is a small planet, they enter the point of least resistance at the poles and exit around the plain of symmetry around the equatorial region. These movements form a tiny but significant particle flow in the doughnut shape fields north and south of the atom. Like the particles around a planet the sub atomic particles around the iron atom flow clockwise at the north pole and anti clockwise at the south pole.



This counter rotational doughnut effect of an iron atom is very slight and far too small to give it what we term as the magnetic effect, that is the ability to attract other metal irons and tendency to align with the magnet poles of the earth. So something else is happening.

In its natural state Iron atoms will align sideways to each other, the north south poles lining up with the equatorial region of the adjacent atom. This effectively cancels out any magnetic properties.

However in certain conditions when Iron atoms are subjected to heat and an electro magnetic flow they can be induced to change their alignment especially if there are other elements in the mix. When the iron atoms are spaced apart their sub atomic flow can circulate free from the effect of the neighbouring iron atoms.

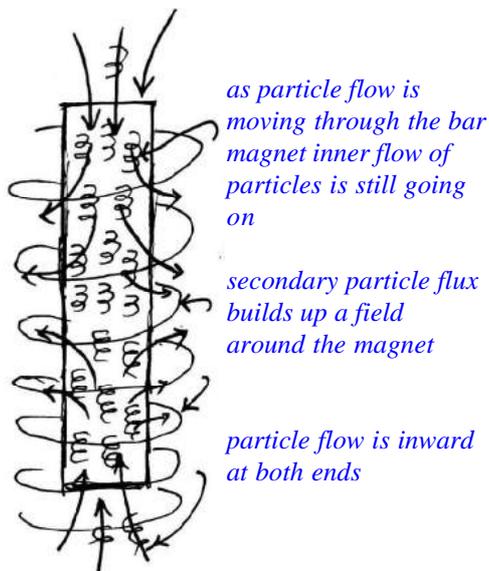


Iron atoms spaced out in a mixture are not only free from their natural tendency to rotate sideways there is also space around each for induced magnetic flow in a fixed direction. When the atoms are brought into alignment the effect of this is to bring together millions of single atoms all spinning in the same direction and moving their internal sub atomic particles in the same circulation patterns. This creates a sub atomic resonance.

The sub atomic flow in a magnet are not the lines of force made around the individual iron atoms, they are the lines of force induced by the cavities and vortex between the iron particles, forcing sub atomic flow around the particles of iron. This effect is cumulative. As particles are pushed forward they leave a small vortex behind to be filled by the next particle.



Magnetic Lines of Force

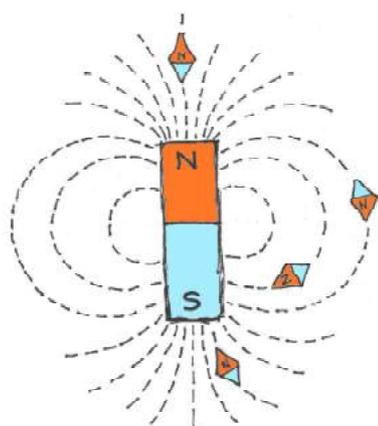


The magnetic flow around a magnet, although it looks like a single force moving around from one end to the other is in fact the cumulative effect of two sets of forces, the north force and south force.

Particles are entering both ends of the magnet the north particles spiralling anti clockwise and the south clockwise.

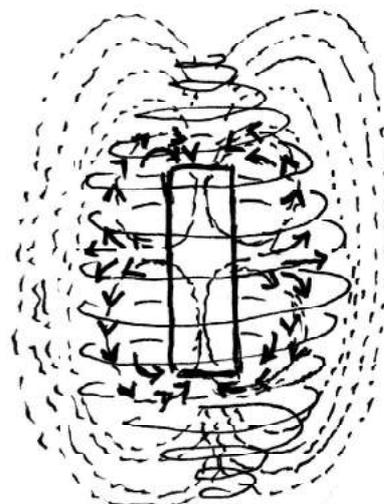
They exit at the side, most toward the centre and less as you get to the poles. You get a north circulation and a south circulation, the doughnut rings.

The fact that each iron atom is acting as a separate unit of magnetic force account for the fact that polarity is constant not matter how small the magnet becomes. When you snap a magnet in two the same pattern remains, snap again and the same pattern again stays true.

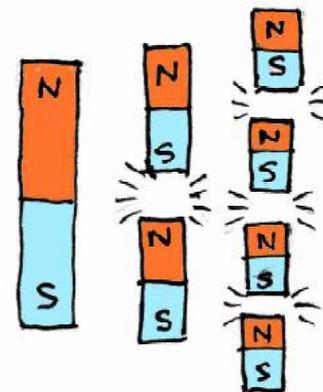


Inside any magnet there is not any single flow of movement, there is a maze of conflicting movements. Individual circulation, accumulative flowing vectors and finally the mass vectors surrounding the whole magnet. All the time all the flows are rotating around following the circulatory direction of the magnetic particles.

When you check the force lines of a magnet with a compass, what is happening is that the clockwise spin of the south pole of the compass needle is attracted to the anti clockwise spin of the north pole.



This complex accumulative nature of magnetism and the way that each iron atom is its own little world of magnetic flux leads to one of the more interesting aspects of a magnetic material that of shatter integrity.

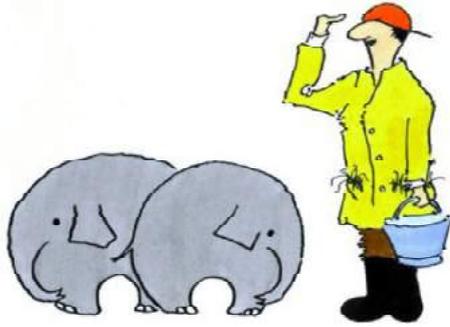


If you take a bar magnet and snap it in two, you will find you have two magnets both with a north and a south pole. If you snap it again and again you will always end up with a proper magnet with a north and south, the power of the magnet will reduce proportionally but it will still have a magnet. This is because the basic property of the magnet is based around millions of individual magnetic particles of iron, you will keep getting a magnet until the piece is so small it does not have an iron atom in it.

Note - heavy impact on a magnet can demagnetise it as the vibrations can disrupt the atomic alignment.

All this is very confusing because the conventional wisdom is that particles flow from the north end of a magnet to the south end. To prove this they move a compass around near a magnet and see the compass needle point straight up at the north pole and the needle rotates round as it is moved around the perimeter of the magnet. At the south pole the north point of the needle is pointing directly to into the south pole of the magnet.

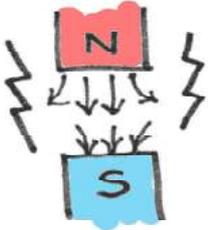




The elephant in the room

But an there is an elephant in the room, an obvious flaw in this model.

If we push two north poles of a magnet together they repel with quite a force, they will not stick together. Well of course they will not, there is a powerful particle flow pushing out, keeping them apart.



Now if we put the north pole against a south pole the attract very strongly, the particle flow is straight from the north into the south, excellent.

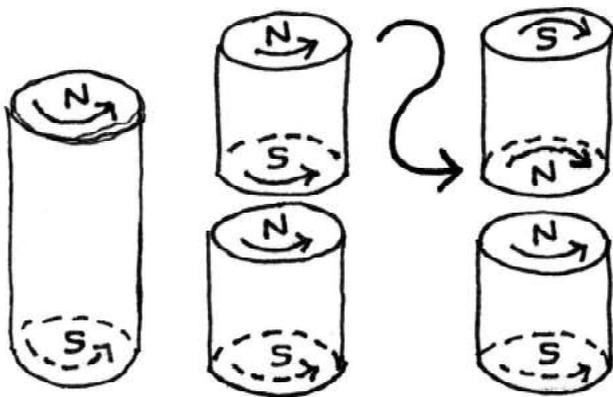
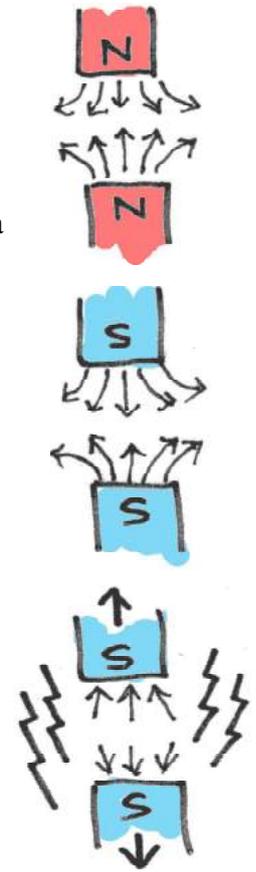
But if we put a south pole to a south pole they reject each other just like when we put the north poles together. They are acting as if there was an outflow of particles.

By rights they should have double the attraction, or at the very minimum be neutral, they should not be repelling like north poles.

Why should it appear that there are magnetic waves travelling around the magnet in one complete circulation yet the polarity test seem to contradict this very supposition.

The key here is the subject that keeps cropping up which ever way we look, which we have referred to earlier in previous chapters, that of rotation.

Lets go back to our simple bar magnet, remembering that any rotating object reverses direction when flipped over.



Why Similar Magnetic Poles Repel

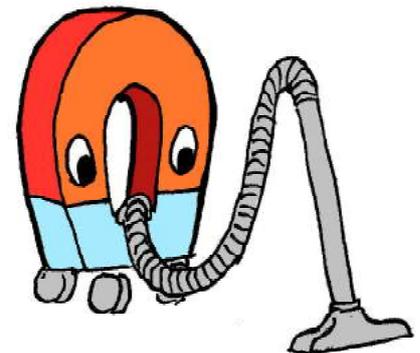
The counter rotation of the North and South ends of a magnet is the reason that similar poles of a magnet repel each other. When you put two north poles together, or two south poles together, the subatomic particles are rotating in opposite directions so they can not interface. It is like trying to screw a clockwork threaded nut onto an anti clockwise threaded bolt (they do exist), simply you can not do it. Turn the south pole to north pole and the threads match and the sub atomic particles effectively screw together.

So now we have an answer to how magnets works and some appreciation of complex atomic movements happen within. Just what I wanted to know when I set out on this quest. There is still one unsolved misty left to look at however. Why are some metals strongly magnetic and other not.

Ferrous Or Non Ferrous That Is The Question

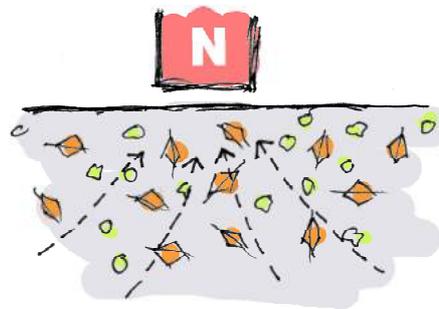
By now you should be fairly familiar with the inner workings of atoms and the way in which they bond. Now it is not a great leap from looking at how the magnets molecular structure affected the magnetic properties of the metal, to looking at how other metals react to magnetism. When we take a magnet and press it to the surface of a peace of metal, some times it will stick to it quite strongly, sometimes it will lightly stick but can be easily separated, other times it will not stick at all. So what is happening.

Perhaps it might help to think of a magnet is a little vacuum cleaner, one that sucks up not dirt but sub atomic particles. We established earlier that the magnetic particles are not generating any kind of energy, they are simply moving energy nodes through. So to work a magnet must have enough particles to move through its inner structure.



Magnetic attraction

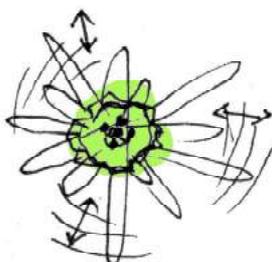
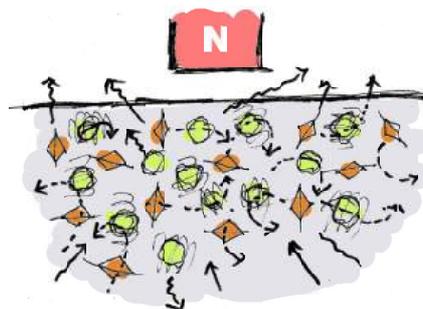
So we place a magnet down onto a piece of steel and it sticks. What is happening is that inside the metal iron particles start to react to the sudden requirement of the magnet to draw out subatomic particles. They position themselves to allow the maximum flow of subatomic particles to pass through the body mass. To do this they orientate themselves the best they can, to follow the influx pattern of the magnets attraction, this means aligning their meridian lines with the influx lines of the magnet.



To achieve this action the steel must have a composition that allows the magnetic particles to do this. This means it must have enough buffering particles to allow this to happen. When the magnet is removed the particles in the metal sample will return to their original positions, although this may take time, giving the metal a residual magnetism for a while.

Why do some metals not stick at all to a magnet. Well these are comprised of atoms that are not balanced. There are as stated earlier, stable atoms and non stable atoms and between the two are atoms that are stable but some what a bit wobbly. These atoms have unbalanced core stacking arrays that have offset core stacking arrangements, this prevents them from adopting any regular rotational motion. Rather like someone break dancing when everyone else is trying to do the waltz.

The affect these atoms have on any substance mixture is to give them resistance to subatomic particles flow. This is not to say that subatomic particles can not penetrate, which of course they can. It means that subatomic particles can not readily flow in any one single direction. The wobbly atoms take hold and spin off particles at random directions, so particle can start flowing but will be quickly thrown off in a different direction. Some particles will get to the magnet but not in sufficient quantities that would make attachment possible.



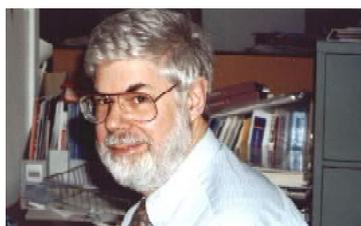
Between these two extremes there is a long and intricate sliding scale of cause and effect, different elements in different combinations, everything effected by not only composition but also dynamics. We use these effects often without fully understanding them. Electricity using gyroscopic induction to create particle flow. Batteries where we use the gravimetric attraction between atoms to induce particle flow. Resonance in radio waves, all these things are bound together by this subatomic particle world. It is like an iceberg most of it hidden from our view, slowly however we are just beginning to probe below the surface of the waves..

Note - It must be noted here that most atoms have some magnetic properties abet at very low levels, these papers are only painting a broad picture of the basic principles.

END OF SUPPLEMENTARY SECTION ON MAGNETISM

For any questions or on this see the main index page for details and also “Question and Answer” sections where some answers to so students have been highlighted.

The Author



I suppose this study started along time ago when I was a very small boy playing with a magnets. It was simple curiosity “How do magnets work”. What was this force pushing against each other when you put two north poles together, an invisible force but a very real one. I did not suddenly realise I had a life’s mission, yet somewhere at the back of my mind there was small box where I would store interesting nuggets of information.

It would take a long time to answer that small boys question. The cold war raged and men were going into space, there was the promise of free atomic energy and the discovery of more atoms than letters of the alphabet. I turned into a nerd, all my mates had girl friends, I had a rocket and a microscope.

I had not set out to produce a project such as this, its evolution has been strange and far from constant. Always however somewhere hiding away in the back of the mind was this small boy ready to pounce on any nugget of information relevant to his quest. Men stood on the moon, the cold war collapsed along with the Berlin Wall and probes were sent to all the planets in the solar system.

Then quite out the blue one day, that small box at the back of my mind opened, It was like a giant jigsaw and the picture began to emerge. It started to make sense.

That day was in 1979 and this is the fourth and I hope the last update. Where I think most of that little boys questions have been answered.

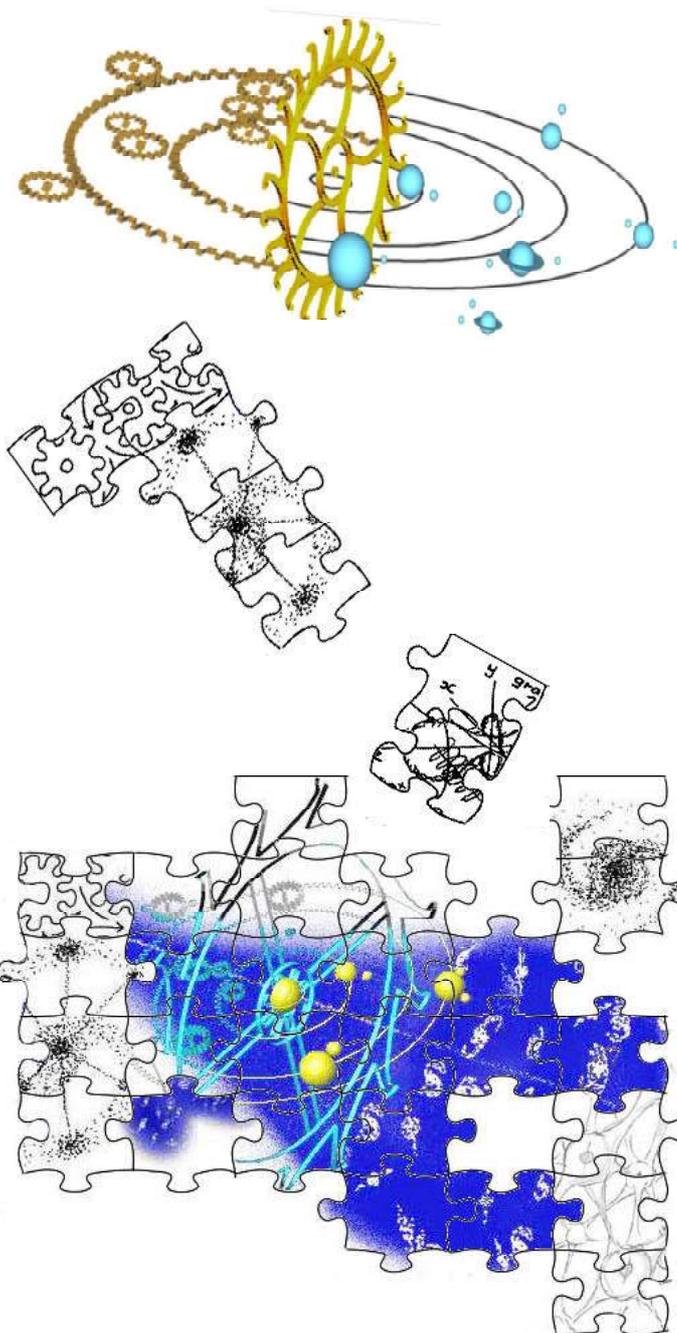
Anthony James Kemp. Jan 2016

CONTACT AND QUESTIONS

Questions and Contact with the author can be made through this website page :-

“ <https://sites.google.com/site/halosadmail/> ”

Where there an E-mail, link will be found to ask questions or make comments for reference. Note all the contact links go through a third party to filter out none relevant questions, spam or trolls etc.



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