

# **Gravity Reversal and Atomic Bonding**

## **(A Theory of Mutually Attracting Sinks)**

**Frederick David Tombe,**  
**Belfast, Northern Ireland, United Kingdom,**  
**Formerly a Physics Teacher at**  
**College of Technology Belfast, and**  
**Royal Belfast Academical Institution,**  
[sirius184@hotmail.com](mailto:sirius184@hotmail.com)  
**21st July 2006, Belfast**  
(31st January 2007 Amendment, Philippine Islands)

**Abstract.** Most students of physics and chemistry are familiar with the law that ‘Like Electric Charges Repel’. It will now be proposed that in the case of negative electric charges, that this mutual repulsion can be explained by a mechanism involving centrifugal force acting laterally between solenoidal field lines in the polarized electric sea, and that this mechanism is overriding an underlying hydrodynamical force of mutual attraction.

Aether hydrodynamics tells us that sinks should mutually attract each other. If we equate negatively charged particles with sinks, this will explain both gravity and atomic bonding, providing that we assume all atomic and molecular matter to contain a net negative charge. The Earth’s magnetic field can then be explained by virtue of the fact that the Earth is a rotating negatively charged object.

There will hence be two opposing forces acting between negatively charged bodies. There will be a hydrodynamical force of mutual attraction and a polarization force of mutual centrifugal repulsion. If the repulsive centrifugal mechanism is dominant at close range, a graph demonstrating the sum of these two forces will have the exact same shape as the graph that illustrates the inter atomic bonding force. There will be a mutually repulsive force at short range and a mutually attractive force at long range that tapers off towards zero.

### **Aether Hydrodynamics**

I. In the 1937 Encyclopaedia Britannica article on electricity it says “*Aepinus (1724-1802) also suggested that the attractive forces between two uncharged bodies might be very slightly greater than the repulsive forces and that this difference might be the cause of gravitation.*”

It was demonstrated in ‘Gravitational Induction and the Gyroscopic Force’,

<http://www.wbabin.net/science/tombe5.pdf>

how the fundamental forces acting between elementary particles appear to obey a pattern of hydrodynamics. Aether hydrodynamics tells us that two sinks must mutually attract, and that a sink and a source should not attract each other unless the aether is flowing into the sink at a greater rate than it is flowing out of the source.

The electric sea is comprised of rotating electron positron dipoles in which the electrons and the positrons are in a mutual Keplerian orbit with their axes of spin perpendicular to a line joining them. In order for this to be possible under hydrodynamical rules, the electrons must be more negatively charged than the positrons are positively charged. This would indicate to us that the luminiferous electric sea that pervades the solar system is probably negatively charged.

The manner in which the magnetosphere is entrained to the Earth indicates a mutual attraction between the Earth and the electric sea. The Keplerian orbits of the planets around the Sun demonstrate a mutual attraction.

We are being pointed to a picture of a negatively charged solar system in which negative electric charge is mutually attractive and accounts for gravitational charge. If this picture is correct, then we must look for a counterbalancing repulsive mechanism.

## **Electric Centrifugal Repulsion**

**II.** In the 1937 Encyclopaedia Britannica article on electricity it says regarding Benjamin Franklin (1706-1790) “ - - - *He supposed therefore that two vitreously electrified bodies would repel each other and that a vitreously electrified body would attract a resinously electrified body but he did not expect two resinously electrified bodies to repel each other - - -*”.

Benjamin Franklin’s observations were in line with aether hydrodynamics but we now need to establish the details of the override mechanism that causes negatively charged bodies in the laboratory to mutually repel each other.

In addition to the irrotational Coulomb force, aether hydrodynamics yields a centrifugal repulsive force, a gyroscopic Coriolis force, and a rotational force  $\partial \mathbf{A} / \partial t$  where  $\mathbf{A}$  is the aether field velocity. In order to explain matters to do with mutual repulsion, we must look to the centrifugal force.

In addition to the evidence of aether hydrodynamics regarding the existence of electric centrifugal force, there is the further evidence of Weber’s law of electrodynamics that contains a centrifugal component. See this article by Prof. AKT Assis in Brazil,

[http://www.ifi.unicamp.br/~assis/Commun-Theor-Phys-V18-p475-478\(1992\).pdf](http://www.ifi.unicamp.br/~assis/Commun-Theor-Phys-V18-p475-478(1992).pdf)

James Clerk-Maxwell used centrifugal force to account for the magnetic force on paramagnetic and diamagnetic materials in a manner reminiscent of Archimedes’ principle. His method can be seen in part I of his 1861 paper ‘On Physical Lines of Force’,

[http://vacuum-physics.com/Maxwell/maxwell\\_oplf.pdf](http://vacuum-physics.com/Maxwell/maxwell_oplf.pdf)

More details on Archimedes' principle in the electric sea can be found at,

<http://www.wbabin.net/science/tombel1.pdf>

Maxwell also used centrifugal force to account for ferromagnetic and electromagnetic repulsion. He explained these phenomena using centrifugal repulsion acting laterally between the solenoidal magnetic lines of force. We might consider extending this principle to account for laboratory experiments in which negatively charged massive bodies mutually repel each other electrostatically.

### **Solenoidal Polarization in the Electric Sea**

**III.** When an electrically charged sphere is immersed in the electric sea, the Coulomb force will cause a linear polarization to occur in the rotating electron positron dipoles of the sea due to the fact that the electrons are more negatively charged than the positrons are positively charged. This polarization field  $\mathbf{E}$  will be a radial field. If we consider the situation of a single electron positron dipole in isolation, we would expect this linear polarization to involve a separation and an elongation of the individual orbits of the electron and the positron. The dipole would be stretched and it would be storing energy in a similar manner to that of a stretched mechanical spring. In the case of the stretched dipole, the elliptical orbits would suggest that the stored energy is in the form of an alternation between kinetic energy and potential energy.

However, in the electric sea, the electron positron dipoles are compressed together in the equatorial plane due to centrifugal repulsion connected with the circumferential velocity. This centrifugal repulsion pressure will oppose the linear polarization process and curtail the elongation of the orbits. This means that the polarized dipoles will look much more like two intersecting circles, and the 'would be' stored potential energy of the elliptical orbits will have been converted into kinetic energy. Hence the stored energy of linear polarization will be predominantly kinetic energy associated with centrifugal repulsion.

The stored energy of centrifugal repulsion will be proportional to the magnitude of the Coulomb force causing the linear polarization.

Let us now assume that negative charges are primarily mutually attractive, based on hydrodynamical rules. It will therefore follow that a metal sphere can be made to contain an excess of negative charge without that negative charge mutually repelling itself out of the sphere. If we bring two negatively charged metal spheres close together, the radial electric field lines between the two spheres will spread away from each other and polarize the electric sea. In the static situation, there will be no magnetic field, but the gyroscopic Coriolis force will still ensure that the polarized dipoles of the electric sea will align with the electric field lines in such a way as to keep the vorticity axes of the dipoles aligned solenoidally. This solenoidal arrangement will represent a double helix alignment of the dipoles, but with a vorticity of the magnitude associated with dipoles in the non-magnetized state. These solenoidal field lines will fall short of constituting full magnetic field lines in the normal accepted sense, because there is no spin source that is causing the vorticity of the dipoles to rise above their equilibrium value.

These solenoidal field lines of vorticity will form concentric solenoidal hoops centred on, and perpendicular to a line joining the two metal spheres, and they will ensure that the polarized dipoles along the electric field lines coming together from each sphere will meet laterally in their mutual equatorial planes, as the field lines spread outwards from each other. The centrifugal repulsion acting laterally between the dipoles in adjacent electric field lines will cause a force of repulsion between the two spheres in addition to the hydrodynamical force of attraction.

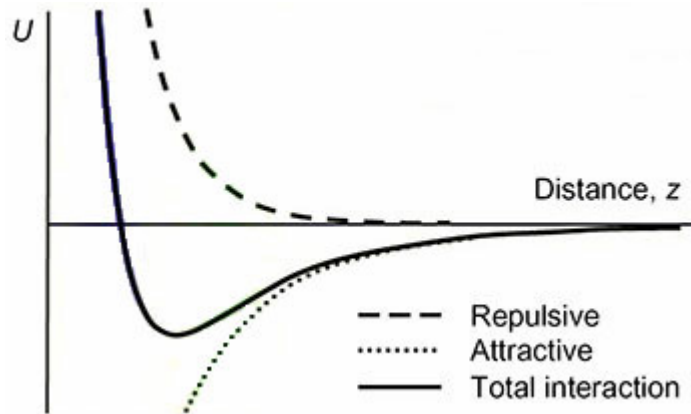
In the case of orbiting planetary bodies, the centrifugal force between the radial gravitational field lines will create a repulsion and hence substantially reduce friction. The question of friction in space has often been used to undermine the idea of a particulate luminiferous medium. We can now see how the gravitational field lines that spread away from each other in the region between planetary bodies will align and polarize the electron positron dipoles in such a way as to invoke the hovercraft effect.

### **The Reversal Threshold**

**IV.** There are clearly two separate antagonistic mechanisms at work in deciding whether two negatively charged bodies should mutually attract or mutually repel each other. There is a mutual force of attraction based on aether hydrodynamical rules, and there is a mutual force of repulsion based on polarization rules. The question now arises as to which of these two is dominant.

We know that the amount of polarization kinetic energy imparted to the electron positron dipoles in the electric sea is proportional to the applied Coulomb force. This means that the square of the circumferential velocity of the dipole particles will increase with the Coulomb force. The centrifugal force is also a function of the square of the circumferential velocity of the dipoles. However, the centrifugal force is actually based on the mutual tangential velocity between dipole particles in adjacent electric field lines, and so we must double the circumferential velocity for the centrifugal force. The centrifugal force will hence rise at a rate of four times the rate at which the Coulomb force rises. The different rates of increase will result in an intersecting reversal threshold. There will be a magnitude of electric field intensity under which negatively charged bodies will mutually attract, and over which negatively charged bodies will mutually repel.

We will have two forces both acting in opposite directions and each with a different drop off coefficient. The mutually repulsive force will drop off more steeply than the mutually attractive force. If the repulsive force dominates at close range, then a graph showing the two superimposed forces will take on a shape identical to that of the graph that demonstrates the bonding forces acting between atoms and molecules.



Let us use  $z$  to denote distance. Centrifugal repulsion will occur up to a certain range. The graph curve will begin in the positive (mutually repulsive) force zone. The curve will drop downwards, cross the  $z$ -axis and a reversal will occur. Beyond the reversal distance, the mutually attractive force will increase for a while as the separation distance increases, a maximum (negative) will then be reached and the mutually attractive force will taper down towards zero within the negative force zone.

The similarity between this scenario and the atomic bonding scenario causes us to question if perhaps the repulsive force in atomic bonding might be caused partly or maybe even entirely by centrifugal force.

If the mutually attractive hydrodynamical force is dominant at close range, then it will always be dominant. This is the situation that occurs in everyday gravitational attraction.

In the situation between a negatively charged body and a positively charged body in cases of attraction, the field lines will connect directly between the two bodies, and hence there will be no equatorial alignment of dipoles that would cause any centrifugal reversal effects.

Two positively charged bodies will always repel each other.

## Atomic Bonding

V. In our solar system, everything falls down unless it has kinetic energy. In aether hydrodynamics, kinetic energy can be viewed as a particle moving against the flow of the aether. If the particle velocity exceeds the aether field velocity, then the particle escapes. If there was no kinetic energy, the planets would fall into the sun, gases would condense into liquids, liquids would freeze into solids, and solids would collapse. We live in a solar system that is governed by an underlying force of mutual attraction that manifests itself as gravity and as the attractive force involved in inter atomic bonding. Total collapse of the solar system is prevented by centrifugal repulsion and possibly also by electrostatic repulsion between positive charges. Centrifugal repulsion requires kinetic energy and both these two quantities are closely related.

Chemists attempt to explain the attractive aspect of atomic bonding using the standard rules of electrostatics. These rules involve the mutual repulsion of negative electric charge that is in fact attributable to the polarization mechanism that is described in section **III**. This represents an appalling misunderstanding that is covered up under titles such as ‘covalent bonding’ or ‘ionic bonding’. In covalent bonding the hydrodynamical origins of the mutual attraction are disguised within the concept of ‘electron sharing’ and the desire to obtain the noble gas configuration.

Ionic bonding is based on the principle that a lattice of alternate positive and negative charges will be mutually attractive. This may be true, but in order for such ions to come about in the first place, a preliminary transaction is necessary. In the case of the common salt crystal, a sodium atom sailing close to a chlorine atom casts a mooring electron over into the chlorine atom. Only then can the two atoms haul themselves together. In other words, the two atoms take an interest in each other prior to the supposed bonding mechanism coming into existence. Ionic bonding is clearly a fudge and it disguises an already existing mutually attractive force.

### **The Principle of Equivalence**

**VI.** In section **IV** of ‘Charge, Spin, and ‘Charge to Mass’ Ratio’,

<http://www.wbabin.net/science/tombe10.pdf>

it was shown how inertial mass is merely a cumulative quantity depending on the amount of elementary particles in a body, and how it acts as an impeding factor to acceleration in situations in which an electrostatic or an electromagnetic force acts on only a portion of a body, or if it acts differently on different particles within the same body.

If we discard gravitational charge completely from this analysis, and treat gravity as negative electricity, then we can see how a standard negative ‘charge to mass’ ratio for all massive bodies that are normally deemed to be neutral, would tie in with Galileo’s famous conclusion at the Leaning Tower of Pisa, that all bodies fall at the same rate. We can now see that the ‘Principle of Equivalence’ of inertial mass and gravitational mass is totally meaningless. Once we have numerically established the charge to mass ratio for atomic and molecular matter, we can then discard Newton’s law of gravity altogether, and simply use Coulomb’s law of electrostatics as the general inverse square law for radial aether flow in situations of spherical symmetry. We would then need to derive an adapted version of Coulomb’s law to cater for situations that involve the polarization rules. We would need to have a hydrodynamical Coulomb’s law in which negative charges mutually attract, and a corresponding polarization law in which negative charges mutually repel. This would of course open up a debate on the meaning of electric permittivity.

The Earth’s magnetic field is evidence that the Earth contains a net negative electric charge. With the surrounding electric sea, a rotating negatively charged Earth would generate a magnetic field in exactly the same way as an electric current generates a magnetic field. See ‘The Double Helix Theory of the Magnetic Field’,

<http://www.wbabin.net/science/tombe.pdf>

## Conclusion

**VII.** It is commonly believed that the stability of atomic and molecular matter arises out of a balance between electrostatic attraction and electrostatic repulsion. This article suggests that atomic and molecular stability is actually based on the following three or four factors,

- (1) Negatively charged matter
- (2) Mutual attraction between negative charges
- (3) Mutual centrifugal repulsion
- (4) Possibly mutual electrostatic repulsion between positive charges. But possibly not.