

# The Aether and the Electric Sea

(The Link between Gravity and Electromagnetism)

Frederick David Tombe,  
Belfast, Northern Ireland, United Kingdom,  
[sirius184@hotmail.com](mailto:sirius184@hotmail.com)

1st December 2006, Phillipine Islands

(21<sup>st</sup> March 2009 Amendment)

**Abstract.** The aether alone cannot explain electromagnetism. In order to explain electromagnetism, we need to have a sea of aether vortices. In order to have a sea of aether vortices, we need to have sources and sinks in the sea. These sources and sinks are what we call electric particles and it is the ‘Electric Sea’ of electric particles that shapes the aether into vortices and causes the fundamental hydrodynamical aethereal forces to manifest themselves in the particular guise of electromagnetism.

The distinction between the aether and the electric sea, and the relationship between them has not been discussed since the time of James Clerk-Maxwell. This paper aims to clarify the relationship between the aether and the electric sea. The gyroscopic solenoidal alignment of the electric sea can reverse a mutually attractive gravitational/electrostatic force into a mutually repulsive electrostatic force. The gravitational and electrostatic forces primarily arise out of pure aether hydrodynamics.

## Bernoulli’s Sea of Aether Whirlpools

I. ET Whittaker [1] writes “*All space, according to the young [John] Bernoulli, is permeated by a fluid Aether, containing an immense number of excessively small whirlpools. The elasticity which the Aether appears to possess, and in virtue of which it is able to transmit vibrations, is really due to the presence of these whirlpools; for, owing to centrifugal force, each whirlpool is continually striving to dilate, and so presses against the neighbouring whirlpools.*”

Bernoulli's aether theory would appear to be the starting point in Maxwell's 1861 paper 'On Physical Lines of Force' [2] at,

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

The important thing to note is that the aether alone is not sufficient to explain electromagnetism. We need a sea of aether whirlpools.

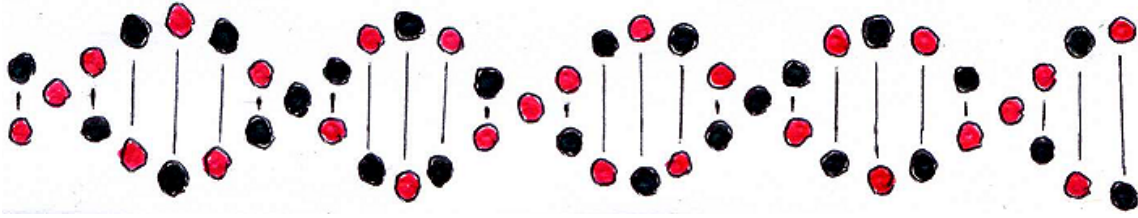
Maxwell expanded upon Bernoulli's sea of whirlpools and he pointed out in part II of this paper, that no such arrangement could be possible unless there were idle wheels between the vortices. Maxwell linked these idle wheels with the particles of electric current. Hence Maxwell's sea of whirlpools became a sea of electric particles, and eventually a dielectric sea.

Lord Kelvin [3] says *"My suggestion is that the Aepinus' fluid consists of exceedingly minute equal and similar atoms, which I call electrions, much smaller than the atoms of ponderable matter; and that they permeate freely through the spaces occupied by these greater atoms and also freely through space not occupied by them."*

It was suggested in 'The Double Helix Theory of the Magnetic Field' at,

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

that Maxwell's idle wheels are electrons and positrons, and that his molecular vortices should more accurately be replaced by rotating electron-positron dipoles in which each electron is undergoing a mutual central force orbit with a positron. The axis of rotation of each electron-positron dipole will be perpendicular to the line joining the electron to the positron. Aether emerging from the positron will cross over and sink into the electron, and so the aether in the universe will be continually renewing itself. The rotation of the dipole will hence lead to an aethereal vortex being contained within it. These dipoles will align solenoidally in a twisted rope ladder fashion, with the electrons angularly phased above the positrons in the axial plane, rendering magnetic **H** lines of force into helical springs. See figure 1 on the next page,



**Figure 1. A close-up view of a single magnetic line of force. The electrons are shown in red and the positrons are shown in black. The double helix is rotating about its axis with a prodigious angular speed and the rotation axis represents the magnetic field vector  $H$ . The diagram is not to scale as the relative dimensions remain unknown.**

## **Inertia, Kinetic Energy, and Centrifugal Force**

**II.** Inertia is generally understood to be that tendency of a body to continue in its state of uniform motion unless acted upon by an external force. It is therefore closely linked with Newton's laws of motion. One measure of inertia is the quantity known as inertial mass. Inertial mass is the impedance to an applied force as is described by Newton's second law of motion. However, inertia has also come to be associated with the momentum and kinetic energy of a body in motion. In order to understand this velocity dependent aspect of inertia, we need to look at the aethereal mechanism that occurs inside a rotating electron-positron dipole.

If we ignore the fact that an electron is an aether sink, and that a positron is an aether source, we can still establish the principles of the Keplerian orbit on the basis of aether pressure and aether tension. As the electron moves radially away from the positron, the aether will rarefy and a tension will oppose the motion, ultimately causing the two particles to pull together again. When the two particles are moving together radially, the aether will become compressed and oppose the motion, ultimately causing the two particles to push apart again. This is the fundamental basis of the interplay between gravity and inertia. It is also the fundamental basis of elasticity. Inertia is a repulsive force that is associated with aether pressure and kinetic energy. It might also have been an attractive force associated with aether tension, but that wouldn't suit the wider picture once we realize that ponderable matter contains pressurized aether, and that gravitational tension dominates in large scale motion.

The situation becomes more complicated when we introduce aether flow into the picture. The positron is an aether source. The outflow of aether from the positron source is of unknown cause, but this outflow in turn causes aether pressure. The electron is a sink, and due to some unknown cause, aether is pulled into that sink causing tension in the aether. Hence there is a close correlation between positive charge and aether pressure on the one hand, and between gravity, negative charge and aether tension on the other hand.

When a body moves under the force of gravitational tension, this leads to an accumulation of aether pressure. It is this aether pressure which is the basis for kinetic energy, absolute motion, and inertia. In a Newton's cradle, we can see how this inertia can be transferred from one body to another, by an aether pulse propagating through a row of hard rigid balls. Inertia is clearly an important aspect in rigid body collisions in addition to deformation elasticity.

The situation is further complicated by vorticity in the aether due to rotation. When an electron and positron change their mutual tangential speed, this will have the effect of altering the balance of aether inflow and aether outflow. Centrifugal force is therefore very closely connected with positive charge, aether pressure, and hence repulsion. Tangential force can alter the balance of aether pressure against gravity.

## **Magnetization and Polarization**

**III.** Magnetization is what occurs when a rotating electron-positron dipole is subjected to a net tangential force. This will either cause an angular acceleration such as to change the magnitude of the angular momentum/vorticity of the dipole, or a precession of the direction of the angular momentum. It will involve an increase in the aether pressure in either case, if the dipole is submerged in the larger sea of electron-positron dipoles. In both cases the increase in aether pressure will be due to an increase in centrifugal force, but the mechanism for that increase will be different in each case. In the former case, the centrifugal force will be increased due to the increase in the mutual tangential speed of the particles. But centrifugal force is dependent on both the mutual tangential speed and

the separation distance. In the latter case, the increased centrifugal force will be caused by a decrease in the separation distance for the existing mutual tangential speed, in relation to neighbouring dipoles, and it will give rise to precessional electromagnetic radiation in the axial direction of magnetic lines of force. This latter cause for centrifugal force being invoked also occurs in linear polarization, and it does not involve any change in the magnitude of the angular momentum or the vorticity. The common theme behind both scenarios is that the mutual orbit is being forced against its natural tendency. This would seem to generate positive charge. Positive charge means aether outflow, and hence aether pressure. When positive charge is caused by centrifugal force, we call it either magnetization or vitreous charge. This fine-grained centrifugal induction mechanism is the basis for Lenz's law in both inductors and capacitors.

Lenz's law relates to the work which needs to be done in bringing these magnetization or polarization effects about. It would appear that magnetization and linear polarization are both effects which involve an increase in aether pressure due to fine-grained centrifugal force in the electron-positron dipoles of the electric sea.

## **Aether Hydrodynamics**

IV. In 'Gravitation and the Gyroscopic Force' at,

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

it was shown how the general acceleration in the aether will take the form,

$$\mathbf{g} = \text{grad} (\Psi + \mathbf{A} \cdot \mathbf{v}) - \mathbf{v} \times \mathbf{H} + \partial \mathbf{A} / \partial t \quad (1)$$

The grad term on the right hand side of equation (1) is the radial term which contains both the aether inflow effect and the centrifugal pressure effect. The  $\mathbf{v} \times \mathbf{H}$  term is a Coriolis acceleration, and the  $\partial \mathbf{A} / \partial t$  term is the angular acceleration. The Coriolis acceleration and the angular acceleration are the tangential terms.  $\mathbf{A}$  is aether field momentum, and  $\mathbf{H}$  is vorticity.

The two velocity dependent effects are inertial effects (or convective effects) because they relate to aether pressure that arises as a consequence of absolute motion in either the aether or the electric sea. See ‘The Cause of Coriolis Force’ at,

<http://www.wbabin.net/science/tombe55.pdf>

Equation (1) is like a generalized Lorentz force with an extra centrifugal force term added. The centrifugal force is particularly interesting because it blends into pure inertia. Any motion at all will involve aether pressure, kinetic energy, and inertia. Where inertia exists in situations that are deemed to involve no net force, the aether pressure will be balanced by a corresponding aether inflow tension coming from either the radial gravity  $\text{grad } \Psi$ , or the angular gravitational acceleration  $\partial \mathbf{A} / \partial t$ . One such case arises in connection with Kepler’s law of areal velocity when we consider only the tangential component of the motion in a planetary orbit. The inertial Coriolis term  $\mathbf{v} \times \mathbf{H}$  cancels out mathematically with the tangential component of gravity  $\partial \mathbf{A} / \partial t$ . The inertial term in this situation is ultimately centrifugal force, but it is acting so as to produce a tangential Coriolis force of the form  $\mathbf{v} \times \mathbf{H}$ , where  $\mathbf{H} = 2\boldsymbol{\omega}$  with  $\boldsymbol{\omega}$  being the angular velocity of the planet. The relationship  $\mathbf{H} = 2\boldsymbol{\omega}$  tells us that in large scale planetary orbits, the electron-positron sea must be a rigid solid. Kepler’s law of areal velocity further tells us that the curl of equation (1) must be zero, because the two tangential terms cancel out mathematically, and the curl of each of the two radial terms is zero. Hence,

$$\text{curl } \mathbf{g} = 0 \quad (\text{Faraday’s Law Equivalent for Gravity}) \quad (2)$$

The Faraday’s law equivalent for gravity is Kepler’s law of areal velocity.

## Electromagnetism

V. The general case in section IV dealt with the motion of large bodies through the electron-positron sea, and hence we equated  $\mathbf{H}$  to  $2\boldsymbol{\omega}$  in order to account for the fact that the electron-positron sea is a rigid solid. When we are looking at aethereal effects in relation to the orbits of the electron-positron dipoles themselves, equation (1) in section IV then becomes,

$$\mathbf{E} = \text{grad} (\Psi + \mathbf{A} \cdot \mathbf{v}) - \mathbf{v} \times \mathbf{B} + \partial \mathbf{A} / \partial t \quad (3)$$

where  $\mathbf{E}$  is electromotive force and  $\mathbf{B}$  is the magnetic flux density which is equal to  $\mu \mathbf{H}$ . The constant  $\mu$  is the areal density of the cross section of the magnetic lines of force. It is usually called the magnetic permeability. Unlike in the case of planetary orbits, angular momentum is not conserved in electromagnetic induction, and so the two tangential terms will not cancel mathematically. Hence if we take the curl of equation (3), the two radial terms will vanish and we will be left with,

$$\text{curl } \mathbf{E} = d\mathbf{B}/dt \quad (\text{Faraday's Law}) \quad (4)$$

Normal convention introduces a negative sign into Faraday's law, which is often wrongly justified on the basis of Lenz's law. Lenz's law applies, but the sign in the equation is determined purely by the convention that is associated with the choice of units. The  $d\mathbf{B}/dt$  total time derivative term contains the two tangential terms in equation (3), which are the Coriolis force and the angular force. And as with the case of planetary motion, the Coriolis force term is ultimately caused by centrifugal force. But unlike in the case of planetary motion, the  $\partial \mathbf{A} / \partial t$  term is also ultimately caused by centrifugal force. In electromagnetic induction, the two tangential terms can superimpose numerically, whereas in planetary motion they mutually cancel numerically, albeit that they don't mutually cancel physically.

## **The Electric Sea and Mutual Repulsion**

**VI.** It is a common mistake to try and explain both gravity and electromagnetism using a single medium. Any attempts to do so have foundered on the grounds of inability to account for why gravity is mutually attractive and why electromagnetism is mutually repulsive. We must clearly distinguish between the 'Aether' and the 'Electric Sea' albeit that the 'Electric Sea' is ultimately a sea of aether vortices.

The aether is the link between gravity and electromagnetism. The aether is space itself and it is of unknown substance. It is dynamical, stretchable, and

compressible, and it accounts for the fundamental forces.

The electric sea is the aether when it is rendered into a rigid solid of solenoidally aligned vortices. The solenoidal alignment in the electric sea can reverse the aethereal force of mutual attraction by centrifugal pressure in the equatorial plane of the vortices. In situations where mutual repulsion occurs, either in magnetism or electrostatics, the lines of force emanating from the two bodies will spread outwards and away from each other. The centrifugal force acting in the equatorial plane of these vortices will then cause a mutual repulsion to act laterally between the lines of force.

In the case of two mutually orbiting planetary bodies, the gravitational field lines emanating from the two bodies will spread outwards and away from each other, as in the case of mutually repelling magnetic poles and electrically charged bodies. 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 linearly polarize the electron-positron dipoles of the electric sea, hence leading to centrifugal aether pressure which will oil the shear lines with a hovercraft effect. The centrifugal force acting laterally between the radial gravitational field lines of neighbouring planetary bodies will create a mutual repulsion, hence eliminating friction.

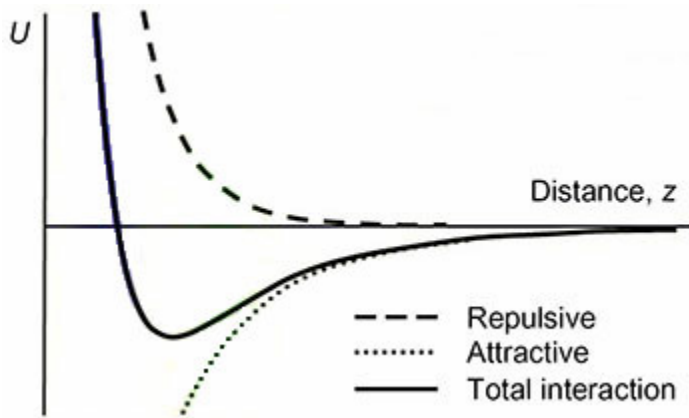
## **Electrostatics**

**VII.** Electrostatics clearly sits on the fence between gravity and electromagnetism. Electrostatics can be a pure aether hydrodynamical phenomenon in which like negative charges mutually attract and in which like positive charges mutually repel. Gravitation is a particular manifestation of mutually attracting electrostatics.

Electrostatics can also be an elastic phenomena associated with polarization of the electric sea. In this case like charges become mutually repulsive due to fine-grained centrifugal pressure in the polarized field lines. The reversal threshold is discussed in ‘Electrostatic Repulsion and Aether Pressure’ at,



We will have two forces both acting in opposite directions. The mutually repulsive centrifugal force will drop off more steeply than the mutually attractive gravitational force because the centrifugal force is an inverse cube law force whereas gravity is an inverse square law 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. See figure 2 below,



**Figure 2. This is both the inter-atomic force graph and the radial force graph for planetary motion. It corresponds to Boscovich's force law.**

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 from the negative side.

## References

[1] ET Whittaker, A History of the Theories of Aether and Electricity; The Classical Theories (London; New York, American Institute of Physics, 1987) p.6

[2] Clerk-Maxwell, J., “On Physical Lines of Force”, Philosophical Magazine, Volume 21, (1861)

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

[3] Aepinus Atomized, Lord Kelvin, Philosophical Magazine Vol 3, No. 15 (Sixth Series)

March 1902, p.257ff. Communicated by the author. From the Jubilee Volume presented to Prof. Bosscha in November 1901.

[4] Dr.Menahem Simhony in Jerusalem has put forward a very compelling argument to suggest that space is pervaded by a dense medium of electrons and positrons. See,

<http://web.archive.org/web/20040606235138/www.word1.co.il/physics/mass.htm>

[5] Ian Montgomery and Peter Whan in Australia have proposed that a sea of electron-positron couplets explains electromagnetic theory. Full details have not yet been published.

[6] Arden Barker ([Monitek@aol.com](mailto:Monitek@aol.com)) has advocated a sea of electron-positron dipoles for the purposes of the propagation of electromagnetic radiation.

[7] Dr. Allen Rothwarf wrote ‘An Aether Model of the Universe’ in 1998 in which he envisaged the aether to comprise of electrons and positrons.

<http://arxiv.org/abs/astro-ph/0703280>