# The Double Helix Theory of the Magnetic Field

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Abstract. In 1856, Wilhelm Eduard Weber and Rudolf Kohlrausch performed an experiment with a Leyden jar which showed that the ratio of the quantity of electricity when measured statically, to the same quantity of electricity when measured electrodynamically, is numerically equal to the directly measured speed of light. In 1861, in his paper entitled 'On Physical Lines of Force', James Clerk-Maxwell equated the above ratio with the ratio of the dielectric constant to the magnetic permeability. In the same paper, Maxwell modeled Faraday's magnetic lines of force using a sea of molecular vortices that were composed partly of aether and partly of ordinary matter. He linked the dielectric constant to the transverse elasticity of this vortex sea, and he linked the magnetic permeability to the density. Since Newton's equation for the speed of sound involves the ratio of the transverse elasticity to the density, Maxwell was able to use the 1856 Weber/Kohlrausch ratio to show that light is a wave in the same medium that is the cause of electric and magnetic phenomena. It will now be suggested that Maxwell's molecular vortices are more accurately represented with rotating electron-positron dipoles that are aligned in a double helix fashion with their mutual rotation axes tracing out the magnetic lines of force.
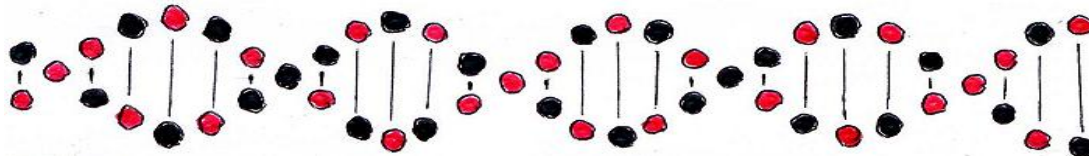
Introduction

I. The idea that space is dielectric can be inferred from Kepler's second law of planetary motion. This law, which is essentially the law of conservation of angular momentum, can be used to show that centrifugal force is an outward radial pressure that obeys the inverse cube law. Whereby the inverse square law of gravity indicates a monopole field, the inverse cube law suggests that space is an electric dipole field as well.

The dielectric nature of space might also be inferred from the electric capacitor circuit in the dynamic state. It is unlikely that the surrounding magnetic field will discontinue in the capacitor region. When there is a dielectric slab in the space between the capacitor plates, we acknowledge the existence of a

polarization current. There is no reason to assume that the situation should be any different when the dielectric slab is not there. Since a wave requires a medium of propagation, and since light exhibits wave behavior, it is reasonable to assume that a dielectric luminiferous medium pervades all of space. It then becomes necessary to explain how such a dielectric medium permits the inverse square law of gravity to act in tandem with the inverse cube law of centrifugal force.

The Aether

II. ET Whittaker wrote " - - - *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 - - -".* [1]

In 1861, James Clerk-Maxwell attempted to explain the magnetic field in terms of a sea of such excessively small whirlpools. In his paper "On Physical Lines of Force" [2], he used such a concept to explain magnetism on the basis that these vortices are aligned solenoidally with their rotation axes tracing out magnetic lines of force. He explained magnetic attraction between unlike poles on the basis that a tension exists along the lines of force that connect directly between the two poles. In the case of magnetic repulsion, magnetic field lines spread laterally outwards in the space between two like poles. Maxwell explained the repulsion on the basis that a centrifugal pressure exists in the equatorial plane of the vortices, hence causing a lateral pressure between the lines of force. Maxwell's model can be better understood if we replace his molecular vortices with rotating electron-positron dipoles, each of which consists of an electron in a mutual circular orbit with a positron. [3]

Such a vortex will then double for both an electric dipole and a magnetic dipole. Electrons will be considered to be sinks in the aether. An unknown force pulls the aether into these electron sinks, hence causing a tension in the surrounding aether which will cause a 'pull force' to act on other particles. A positron is an aether source from which a pressurized fountain of aether emerges. Once again, the force that pushes the aether out of these positron sources will remain unexplained. The aether itself is a mysterious substance that is dynamical, compressible, and stretchable. There will be a vector **A** equal to $\rho\mathbf{v}$, where ρ is the density of the aether, and **v** is the velocity of an element of the aether. Modern textbooks refer to **A** as the 'magnetic vector potential', but it more

accurately constitutes a momentum per unit volume. The vector **A** can represent both gravity and electric current, although electric current is commonly denoted by the symbol **J**. Maxwell identified the quantity **A** with Faraday's *electrotonic state*. If we keep the aether density constant in time, we can expand the force term **F** = d**A**/dt to obtain,

$$\mathbf{F} = \partial\mathbf{A}/\partial t - \mathbf{v}\times\mathbf{B} + \nabla(\mathbf{A}.\mathbf{v}) \tag{1}$$

where **B** =∇×**A**. See **Appendix A**.

Eq. **(1)** is recognizable as the *'Lorentz force'*, but the terms in the Lorentz force appeared in Eqs. (5) and (77) of Maxwell's 1861 paper, which was written when Lorentz was only eight years old. Taking the curl of Eq. **(1)** we obtain,

$$\nabla\times\mathbf{F} = \partial\mathbf{B}/\partial t + (\mathbf{v}.\nabla)\mathbf{B} = d\mathbf{B}/dt \tag{2}$$

which is a total time derivative extension of Eq. (54) in Maxwell's 1861 paper. See **Appendix B**. Oliver Heaviside always referred to Maxwell's Eq. (54) as Faraday's law, even though it is not strictly speaking Faraday's law. Maxwell's Eq. (54) is similar to Faraday's law, but it doesn't account for convectively induced electromotive force.

The first term on the right hand side of Eq. **(1)** represents the force due to tension or pressure in the aether. Around a sink or a source, this tension or pressure can be split into a radial (irrotational) component and a transverse (angular) component. The irrotational radial component can be represented in the form ∇Φ, where Φ is a scalar potential function. The second and third terms on the right hand side of Eq. **(1)** can both be either the Coriolis force or the differential between two opposing centrifugal forces. These inertial forces can manifest themselves in a number of fashions. The transverse Coriolis force arises in cyclones and in non-circular planetary orbits in conjunction with the conservation of angular momentum. We can also have an axial Coriolis force that arises when bodies rotate about an asymmetrical axis or when the rotation axis is forced to precess. The axial Coriolis force can reverse a rotating rattleback or prevent a gyroscope from toppling under gravity. Differential centrifugal pressure between air molecules, above and below a wing, keeps aeroplanes in flight. The magnetic force on a current carrying wire in a magnetic field is caused by differential centrifugal pressure on either side of the wire, while the Coriolis force is behind the induced electromotive force in a wire that is moving at right angles through a magnetic field.

The Double Helix Alignment

III. Lenz's law can be understood on the basis that any stretching of the aether will have a tendency to tighten the electron sinks and to widen the positron sources. This will result in the generation of aether pressure that will oppose the tension that has created it. Tension in the aether may be caused by 1) stretching the dipoles linearly, 2) stretching the dipoles torsionally so as to increase vorticity, 3) causing the dipoles to precess, or 4) dilation of the dipoles on the leeward side of an object in motion. Linear stretching causes the electron orbit and the positron orbit to become like two intersecting circles. This effect is called polarization. The angular effects at 2) and 3) lead to the centrifugal and the axial Coriolis pressures of magnetization. When a dipole is caused to precess out of its solenoidal alignment, it will be forced back into line again by induced aether pressure, and during this process, the circumferential motion of the electrons and the positrons will be deflected at right angles into the axial direction. This fundamental axial Coriolis force underlies Ampère's Circuital Law. In the solenoidal equilibrium state, the electron-positron dipoles will be aligned in a double helix fashion, with their rotation axes tracing out magnetic lines of force. A tension will exist along these lines of force due to the fact that the electrons and the positrons will be alternately stacked. See Fig. 1,
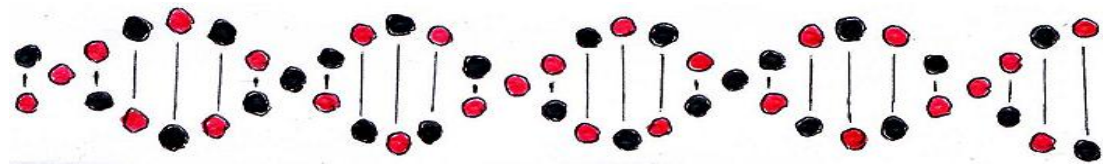

Fig. 1. A single magnetic line of force. The electrons are shown in red and the positrons are shown in black. The double helix is rotating about its axis with a circumferential speed equal to the speed of light, and the rotation axis represents the magnetic field vector **H**.

The tension in the lines of force is the cause of magnetic attraction between unlike magnetic poles. The double helix lines of force will behave like helical springs and pull the two unlike poles together. There is an element of flexibility as regards the magnitude of the tension in the lines of force, in that the helix angle can vary.

In the equilibrium state, the tension along the lines of force will be counterbalanced by a centrifugal aether pressure in the equatorial plane between two adjacent dipoles. The mutual transverse speed between adjacent dipoles will torsionally stress the aether, hence leading to vorticity. This will widen the positron sources and generate centrifugal aether pressure. Aether pressure will be considered to be positive charge, whereas aether tension will be considered to be negative charge. Charge will be dependent on aether density, and it can manifest itself in a number of guises including electrostatic (polarization), gravitational, inertial, and magnetic charge. In the absence of rotation, tension

will dominate in the universe, which is why we have gravity. The electron-positron sea will be referred to as 'The Electric Sea', in order to distinguish it from the pure aether itself. The electric sea will therefore be somewhat reminiscent of the striking surface for a safety match. If we disturb it, it will cause an ignition of energy.

The Speed of Light

IV. Let us consider the equatorial elasticity of a single rotating electron-positron dipole of radius h. Hooke's law appears at Eq. (105) in Maxwell's 1861 paper in the form,

$$R = -4\pi E^2 h \qquad \textbf{(Electric Displacement Equation)} \qquad \textbf{(3)}$$

where R is electromotive force, E is the dielectric constant, and h is displacement. If we consider the electric sea to be uniformly dense with the distance between neighbouring dipoles being in the same order of magnitude as the dimensions of the dipoles themselves, then these dipoles will be pressing against each other with centrifugal force while striving to dilate in their equatorial planes. This centrifugal pressure between neighbouring dipoles will be the source of the elasticity, and since the dipoles are all spinning in the same direction, the effective speed for the purposes of centrifugal potential energy will be the mutual transverse speed, which will be twice the circumferential speed. Centrifugal potential energy is the same thing as transverse kinetic energy, and summed over the two particles of the dipole this will be equal to $m(2v)^2$, or $4mv^2$, where m is the average mass of the two particles and where v is their circumferential speed. Mass is considered to be a measure of the amount of aether. This centrifugal potential energy will be equal to the maximum linear kinetic energy as resolved along a diameter in relation to the projected simple harmonic motion. This in turn will be equal to the maximum potential energy that we obtain from Hooke's law. Since we are dealing with shared elasticity over the two particles within the dipole, this maximum potential energy will be $2\pi E^2 h^2$. Therefore,

$$4mv^2 = 2\pi E^2 h^2 \qquad \textbf{(4)}$$

and hence,

$$2mv^2 = \pi E^2 h^2 \qquad \textbf{(5)}$$

The centrifugal potential energy, $4mv^2$, is the resultant of an inward centrifugal force and an equal and opposite outward centrifugal force. As such, if we double the outward centrifugal force we will split the dipole. The input energy needed to split an electron-positron dipole is therefore $2mv^2$. We also know from the 1932 Carl D. Anderson experiment that this energy is the 1.02 MeV associated with Gamma radiation and that it corresponds exactly to $2mc^2$, where c is the speed of light. [4] Hence it follows that the circumferential speed of the electrons and positrons in the dipoles of the electric sea is equal to the speed of light [5], and that,

$$c^2 = E^2/\mu \tag{6}$$

where μ is the areal density, $2m/\pi h^2$, of an electron-positron dipole. Eq. (6) is equivalent to the Eq. (135) in Maxwell's 1861 paper which he derived from Newton's equation for the speed of sound at Eq. (132). Taking the areal density to be the magnetic permeability and using any established system of units, we can then calculate that the diameter of the electron-positron dipoles is 1.35 picometres, which is very close to half of the wavelength of the Gamma rays which can split these dipoles apart. This means that the rotating electron-positron dipoles of the luminiferous medium are about one thousandth the size of an average atom, and it follows that Gamma rays must be a stream of pressure pulses such that one half of the wave cycle is positive and the other half is neutral.

The Electromagnetic Wave Equation

V. In a rotating electron-positron dipole, the circumferential velocity, **v**, leads to the equation,

$$\nabla \times \mathbf{v} = \mathbf{H} \tag{7}$$

where **H** is vorticity, or magnetic field strength. We know that for a single particle moving in a circle with angular velocity **ω**, the vorticity is equal to 2ω. Taken over the two particles of the dipole, the vorticity is therefore related to the angular momentum per unit surface area through the equation,

$$\mathbf{H} = 4\pi(\mathbf{h} \times \mathbf{v})/\pi h^2 \qquad \textbf{(cf. Biot-Savart law)} \tag{8}$$

If we define the vector **D** as a kind of displacement density, $4\pi \mathbf{h}/\pi h^2$, Eq. (8) then simplifies to,

$$\mathbf{H} = \mathbf{D} \times \mathbf{v} \tag{9}$$

The divergence of **H** will be zero because **H** is a solenoidal axial vector which is the curl of **v**. The only monopoles involved in magnetism are the electric monopoles that wind around each magnetic line of force in a double helix fashion. Taking the curl of **H** we obtain,

$$\nabla \times \mathbf{H} = \mathbf{v}(\nabla.\mathbf{D}) - \mathbf{D}(\nabla.\mathbf{v}) + (\mathbf{v}.\nabla)\mathbf{D} - (\mathbf{D}.\nabla)\mathbf{v} \qquad (10)$$

The last three terms on the right hand side of Eq. **(10)** vanish because **v** is a transverse vector perpendicular to **D**, and **v** is not a vector field. In the first term on the right hand side of Eq. **(10)**, the divergence of **D** is $4\pi/\pi h^2$. Hence we are left with,

$$\nabla \times \mathbf{H} = 4\pi\mathbf{v}/\pi h^2 \qquad \textbf{(cf. Ampère's Circuital Law)} \qquad (11)$$

Comparing Eq. **(7)** with Eq. **(11)**, we can see from the two reciprocal curls that we are dealing with interlocking solenoidal lines of electric current and magnetic tension at every point in space. When a dipole is subjected to a simple harmonic angular acceleration, the circumferential velocity **v** will obey the relationship,

$$\mathbf{v} = -(2m/4\pi E^2)\partial^2\mathbf{v}/\partial t^2 \qquad (12)$$

where $2m/4\pi E^2$ is the inverse transverse elasticity (electric permittivity) taken from Eq. **(3)**. Substituting Eq. **(12)** into Eq. **(11)** leads to,

$$\nabla \times \mathbf{H} = -(\mu/E^2)\partial^2\mathbf{v}/\partial t^2 \qquad (13)$$

Finally, taking the curl of Eq. **(13)** and using Eq. **(7)** we obtain,

$$\nabla^2\mathbf{H} = (\mu/E^2)\partial^2\mathbf{H}/\partial t^2 \qquad \textbf{(wave equation)} \qquad (14)$$

Although Maxwell simply defined the density μ to be unity in air, he established a theoretical equality between the ratio of density and elasticity to the ratio of electromagnetic and electrostatic units of charge. The latter ratio was determined experimentally by Weber and Kohlrausch in 1856 using a discharging Leyden jar, and it linked to the directly measured speed of light, hence confirming Eq. **(6)** in the previous Section. On discovering this, Maxwell stated that, *" - - - we can scarcely avoid the inference that light consists in the transverse undulations of the same medium which is the cause of electric and magnetic phenomena - - -"*. It follows from all of this that Eq. **(14)** above is therefore the electromagnetic wave equation.

The derivation of the electromagnetic wave equation above tells us that electromagnetic waves are a propagation of angular acceleration or precession through a sea of tiny aethereal vortices [5], and that these undulations correspond to oscillations in either centrifugal pressure or axial Coriolis pressure. These

pressure oscillations are caused by an excess outflow of vitreous aether from the positrons of the electric sea. The excess outflow from an angularly accelerated dipole causes a torque between itself and the next dipole along the line. This causes an excess outflow from that next dipole while restoring the first dipole to its equilibrium position, and the cycle is then repeated. When the first dipole returns to its equilibrium position, the excess aether will disappear into the electron. Electromagnetic radiation is therefore an in/out wave which causes a net flow of pressurized aether. This net flow of pressurized aether accounts for the associated linear momentum and the associated radiation pressure, as well as helping to explain the photon nature of electromagnetic radiation.

It should be noted that the above derivation of the electromagnetic wave equation did not involve Maxwell's displacement current. Displacement current is a linear polarization effect and its mathematical form can be used in the derivation of the electromagnetic wave equation. However, when we use displacement current to derive the electromagnetic wave equation, we are actually using an *'angular displacement current'* that differs from the linear displacement current in that it utilizes the transverse electromotive force of electromagnetic induction rather than the irrotational electromotive force of Gauss's law. Electromagnetic radiation is a magnetization (rotational) effect that can radiate wirelessly from the side of an electric wire. It is an angular displacement effect which is perpendicular to linear displacement current. Linear displacement on the other hand propagates along in the space between two electric wires and is associated with cable telegraphy. The inability to make this distinction in modern physics is of course due to the denial of the existence of the very medium which becomes magnetized and/or linearly polarized.

Radiation Pressure

VI. Light exerts a force on a physical target. Maxwell calculated the force associated with radiation pressure to be,

$$F = dp/dt = (1/c)dE/dt \tag{15}$$

where E is energy, c is the speed of light, and p is momentum. By substituting p = mc into equation **(15)**, where m equals aethereal mass, we obtain the relationship,

$$c^2dm = dE \tag{16}$$

which implies that electromagnetic radiation is a net flow of aethereal mass which is related to energy by the equation,

$$E = mc^2 \tag{17}$$

But just because Eq. **(17)** relates numerical values, it certainly doesn't mean that mass and energy are equivalent. The *'speed of light'* is the *'Mach number'* for the electric sea by analogy to the speed of sound in air, and it is only in connection with electromagnetic radiation in the electric sea that this famous equation possesses any physical significance. Gilbert Lewis published this approach to $E = mc^2$ in 1908. [6]

Electromagnetism and Kepler's Second Law

VII. The 1887 Michelson-Morley experiment strongly suggested that the gravitational field of the Earth entrains an extended region of the electric sea while it is undergoing translational motion in its orbital path around the Sun. The entrained region of electric sea which surrounds a moving planetary object will constitute the gravitosphere, and it will extend to the shear region which exists at the boundary with neighbouring gravitospheres. A planetary object and its surrounding gravitosphere move as one, in like manner to an egg yolk and its surrounding egg white.

When a planet and its gravitosphere are in motion through the electric sea, there will be a compression, and hence a contraction of the electron-positron dipoles on the windward side of the motion. There will also be a rarefaction, and hence a dilation of the electron-positron dipoles on the leeward side of the motion. This will result in a transverse vorticity gradient, and the rarefaction on the leeward side will cause a tension that will open the positron sources wider, and hence induce aether pressure (positive charge). Interestingly, the compression on the windward side does not involve Lenz's law, and the associated increase in pressure is attributed simply to the decrease in volume. This compression phenomenon is of interest in that it involves a disturbance in the aether which lies outside the realm of electromagnetic radiation. It will involve a pressure wave in the pure aether itself as opposed to an in/out flow of excess pressurized aether from positrons to electrons, and this phenomenon becomes relevant in the motion of rigid bodies and in rigid body collisions such as are observed in the *'Newton's Cradle'*.

In the case of two-body planetary motion, there will therefore be pressure acting on both the leeward side and the windward side of the transverse motion. These two pressures will cancel out mathematically, hence giving rise to Kepler's law

of areal velocity and the law of conservation of angular momentum. But this mathematical cancellation does not correspond to a physical cancellation of the two transverse effects. The two transverse effects are both pressures which cannot physically cancel each other, and neither does the mathematical cancellation have any bearing on the transverse vorticity gradient that is generated in the electric sea by the motion.

In a non-circular orbit, these two transverse pressure components can be individually observed. Consider a comet in the downward stage of an elliptical orbit. The pressure on the windward side of the motion will cause a Coriolis force to act. This Coriolis force will cause the inward radial motion to be continually deflected into the leeward transverse direction. The induced transverse pressure that is pushing from the leeward side will meanwhile cause an increase in speed in the windward direction. This leeward transverse pressure appears like a transverse component of gravity, although it is actually an inertial effect caused by aether pressure from the positrons. Ultimately however this inertial force is fed by radial gravity, in that gravity causes kinetic energy to accumulate. The aethereal pressure that is associated with this accumulated kinetic energy in turn supplements the transverse inertial force, $\partial \mathbf{A}/\partial t$, which causes the transverse speed to increase at the expense of the downward radial acceleration. The transverse motion causes a shear stress in the shear region above and below the planet and also on the inner side of the orbit. This shear stress increases the vorticity in the electron-positron dipoles and generates axial Coriolis force above and below, along with centrifugal force on the inner side. (In an unperturbed two-body orbit, the two axial Coriolis forces will cancel mathematically and there will be no vorticity gradient in the axial direction.) The increasing transverse speed then gives rise to an increasing centrifugal force which eventually exceeds the inward radial gravitational force, hence causing an outward recoil effect. The Keplerian orbit will therefore be characterized by a constant transfusion of aether from positrons to electrons in which the fine-grained swirling motion of the aether is acting like cog-wheels in the planetary orbital mechanism. It is often argued that if a luminiferous medium existed, it would cause friction in space and the planets would fall into the Sun. But rather than causing friction, the electric sea actually causes Kepler's laws to be the way they are. Gravity itself is a large scale aethereal effect which is not technically an electromagnetic effect, but the electric sea nevertheless plays an important role in interacting with and shaping the gravitational field.

In the case of an electron and a positron which are spiralling inwards in a positronium orbit, the accumulated aether pressure does not cause them to recoil at the moment of closest approach. Instead, they take their place inside the double helix magnetic field structure, and the accumulated aether pressure itself

recoils in two opposite directions in the form of gamma photons. The angular momentum is transferred into the fine-grained angular momentum of electromagnetic radiation. No actual electron-positron annihilation takes place as is commonly believed. The electron and the positron are still physically present in the magnetic lines of force.

Although large planetary objects entrain the luminiferous medium while undergoing translational motion, we know from the 1925 Michelson-Gale experiment that this does not appear to be so either in the case of rotational motion, or in the case of small objects that are undergoing translational motion. In these cases, it seems that the inertial forces overcome the bonding forces. When a wire moves at right angles through a magnetic field, we would expect the electric sea to flow through the inter-molecular spacing in the wire as like water flows through a basket. The input force that moves the wire will generate aether pressure from the positrons on the leeward side of the molecules of the wire, due to dilation of the aethereal dipoles. This aether pressure gives rise to an electromotive force, $\partial \mathbf{A}/\partial t$. The aether pressure on the windward side of the motion will be due to compression of the electron-positron dipoles. The resulting vorticity gradient in the electron-positron dipoles around the molecules of the wire will therefore cause a Coriolis force which will deflect the newly generated leeward aether pressure at right angles along the wire, hence giving rise to an electric current. Convectively induced electromagnetic induction is therefore closely related to Kepler's second law of planetary motion.

In the electromagnetic case, the vector $\mathbf{B}$ in Eq. (**1**), which is equal to $\rho\mathbf{H}$ or $2\rho\boldsymbol{\omega}$, represents the concentration of magnetic lines of force, and it is known as the magnetic flux density. In the Keplerian orbit, the radial pressure only acts in the outward direction and so it then follows that as compared with the electron-positron dipole orbit, the centrifugal force reduces to ½ $\nabla(\mathbf{A}.\mathbf{v})$ or to ½ $\mathbf{v}\times\mathbf{B}$. The aether hydrodynamical approach therefore exposes the source of centrifugal force as lying in the fluid-like aether between two electron-positron dipoles, hence explaining why the electric sea can behave like a liquid for the purposes of planetary motion and yet still behave like a solid for the purposes of electromagnetic radiation. In a planetary orbit, the shear region is cushioned by a centrifugal hovercraft effect, while in electromagnetic radiation the particles maintain their positions in the double helix solid.

Orbital Stability and Magnetic Levitation

VIII. Gravity is an all-prevailing aether tension that is associated with the large scale radial and irrotational percolation of aether through the electric sea, and into the sinks of atomic and molecular matter. It is therefore a monopole field

which obeys the inverse square law. The gravitational field has no rotation axis, which means that all large scale vorticity has been absorbed into the magnetic field by the tiny electron-positron vortices of the electric sea. Gravitational field lines between two objects spread outwards and away from each other. This means that a pressure must exist laterally between these field lines. This pressure is due to centrifugal force in the equatorial plane of the dipoles along the path of flow and also due to polarization of the electron-positron dipoles due to this flow, and hence it obeys the inverse cube law of the dipole field. The difference in power laws between gravity and centrifugal force gives rise to the stability in a planetary orbit. Transverse motion causes shear stress in the electric sea and this gives rise to an increase in centrifugal pressure that can overcome gravity. Gravity is a mild negative charge. If we have two negatively charged bodies and we increase the negative charge on one or both of these bodies, the linear polarization of the electron-positron dipoles in the electric sea will increase, and hence the aether pressure emerging laterally from the field lines will increase. A reversal threshold will be reached in which two negatively charged bodies will repel each other, and the repulsive force will obey the inverse cube law of the dipole field. In the case of magnetic repulsion between two like poles, the field lines spread outwards and away from each other, and the repulsion pressure acting laterally between the lines of force is due to the centrifugal force acting in the equatorial plane of the rotating electron-positron dipoles. Magnetic repulsion will obey an inverse cube law within the extent of the magnetic field, since it is a dipole field. The difference in the power laws between the repulsive forces and the attractive forces means that it is possible to have both electrostatic and magnetic levitation.

Electrostatic and magnetic attraction arises from aether tension along the lines of force that connect directly between the unlike charges or the unlike poles. In the electrostatic case, the attractive force should obey the inverse square law. In the case of magnetic attraction, we don't have spherical symmetry, and the inverse square law will only arise on the microscopic level between electrons and positrons along the double helix lines of force.

Electric Current

IX. The aether has very important implications for electric current. When electric current is understood in terms of a flow of aether, it then becomes clear that a wire loop that is rotating in a magnetic field is actually screwing aether out of the positrons of the electric sea. Aether will be pumped outwards from the generator and into the circuit during both halves of the AC cycle. The thing that changes during each half of the cycle is the direction of the circulation of

the aethereal current. Electric current is a circulation of aether which begins at a source and ends in sinks that are dotted all along its path. If the input pressure is greater than the outflow tension, then the electric current circuit will inflate. This inflation often expands outwards between two wires, with a connecting bridge of current at the step. This joining current causes a linear polarization of the electron-positron dipoles in the electric sea, and this linear stretching in turn causes impedance. The aethereal current will therefore advance laterally in order to circumvent this impedance. When Maxwell first conceived the idea of displacement current, he hinted at a rotatory effect, but the concept later became associated with linear polarization. At any rate, if the linear polarization effect at the advancing step is what Maxwell eventually had in mind for displacement current, it certainly isn't the same thing as the *'angular displacement current'* that can be used in the derivation of the electromagnetic wave equation. When the aethereal electric current has totally expanded within a conducting circuit, the aether pressure will then flow entirely within the conducting wire, and it will push any free positive electric particles along with it. Free negative particles will eat their way towards the positive source, and hence the negative and positive particles will screw their way past each other in opposite directions in a double helix fashion. [7]

The existing particle model of electric current as is taught in the textbooks does not work, because it implies that alternating current is a backwards and forwards unidirectional motion of particles of one kind. Such a situation fails to address the net input of energy that arises with alternating current. Although alternating current reverses direction cyclically, there is still a net input of aether into the circuit in each cycle, and it was Tesla who worked out how to siphon off this energy into the AC motor. Without the aether, this fundamental reality cannot be adequately explained. The aether is in fact the original vitreous electric fluid of Charles du Fay, Benjamin Franklin, and William Watson, and electrical terms such as voltage, charge, and current are merely alternative words for the hydrodynamical quantities of pressure and flow. Modern electromagnetism has become aether hydrodynamics with the aether hidden from view, and electric current is another casualty of the abandonment of the aether.

Conclusion

X. The aether has been sacrificed in modern physics to make way for Einstein's erroneous theories of relativity. Einstein's theories of relativity came about as a result of a number of illogical steps of reasoning. In 1889, Oliver Heaviside attempted to analyze electromagnetic radiation that is being emitted from a

source which is moving relative to the luminiferous medium. His resulting equations superficially resembled the equations of relativity, and if they corresponded to any physical reality at all, it was to the bunching up effect of the Doppler shift. Heaviside however proceeded to extrapolate this result to the electrostatic field. Meanwhile, the 1887 Michelson-Morley experiment had been causing problems. Many believed that the experiment confirmed George Stokes' entrained aether model, but George Francis Fitzgerald suggested that the null result was due to the fact that physical contraction occurs in the direction of motion through the aether. A few years later, Hendrik Lorentz independently made a similar suggestion. Despite not having any idea at all about the physical composition of the luminiferous medium or the electromagnetic wave mechanism, Lorentz argued that Stokes' entrainment model presented hydrodynamical problems in relation to stellar aberration. Based on Heaviside's work, Lorentz figured that since matter is bonded together by electrostatic forces, it will perhaps contract along its direction of motion. Lorentz then produced a modified version of Heaviside's equations, and when Lorentz's equations got into the hands of Einstein, the aether managed to disappear altogether and we ended up with a theory which allows for the absurdity that two clocks can each run slower than the other. Dr. Carl A. Zapffe [8] was a fierce critic of Einstein's theories of relativity and he once said that anybody who has ever observed the Aurora Borealis should have realized that no aether wind blows. Dr. Zapffe concluded that Lorentz had not considered the idea that the entrained region of luminiferous medium has an absolute cut-off boundary.

Maxwell's sea of molecular vortices was abandoned prematurely. Space is densely packed with electrons and positrons which act as sinks and sources for the aether. These electrons and positrons are mutually paired in dipole orbits, and they form double helix chains around their mutual rotation axes. These double helix chains constitute magnetic lines of force. Space is hence an electric sea of tiny aethereal whirlpools, and the aether pressure that emerges from these whirlpools when the electric sea is disturbed, accounts for both the electromagnetic repulsive forces and the inertial forces. The electric sea is about thirty-two times more dense than lead. In the steady state, magnetic lines of force are solenoidal, yet they are riddled with sinks and sources. In the dynamic state, these magnetic field lines are breaking and rejoining, with the sink of one line re-connecting with the source of another line. Centrifugal force plays an important role in electromagnetism despite the fact that modern physics claims that centrifugal force is not a real force.

Appendix A

The gradient of the scalar product of two vectors can be expanded by the standard vector identity,

$$\nabla(\mathbf{A}.\mathbf{v}) = \mathbf{A}\times(\nabla\times\mathbf{v}) + \mathbf{v}\times(\nabla\times\mathbf{A}) + (\mathbf{A}.\nabla)\mathbf{v} + (\mathbf{v}.\nabla)\mathbf{A} \qquad \textbf{(1A)}$$

Let us consider only the vector **A** to be a vector field. If **v** represents arbitrary particle motion, the first and the third terms on the right hand side of equation **(1A)** will vanish, and from the relationship $\nabla\times\mathbf{A} = \mathbf{B}$, we will obtain,

$$\nabla(\mathbf{A}.\mathbf{v}) = \mathbf{v}\times\mathbf{B} + (\mathbf{v}.\nabla)\mathbf{A} \qquad \textbf{(2A)}$$

Hence,

$$(\mathbf{v}.\nabla)\mathbf{A} = -\mathbf{v}\times\mathbf{B} + \nabla(\mathbf{A}.\mathbf{v}) \qquad \textbf{(3A)}$$

Since,

$$d\mathbf{A}/dt = \partial\mathbf{A}/\partial t + (\mathbf{v}.\nabla)\mathbf{A} \qquad \textbf{(4A)}$$

it then follows that,

$$d\mathbf{A}/dt = \partial\mathbf{A}/\partial t - \mathbf{v}\times\mathbf{B} + \nabla(\mathbf{A}.\mathbf{v}) \qquad \textbf{(5A)}$$

Appendix B

The curl of the vector product of two vectors can be expanded by the standard vector identity,

$$\nabla\times(\mathbf{v}\times\mathbf{B}) = \mathbf{v}(\nabla.\mathbf{B}) - \mathbf{B}(\nabla.\mathbf{v}) + (\mathbf{B}.\nabla)\mathbf{v} - (\mathbf{v}.\nabla)\mathbf{B} \qquad \textbf{(1B)}$$

Let us consider only the vector **B** to be a vector field. If **v** represents arbitrary particle motion, the second and the third terms on the right hand side of equation **(1B)** will vanish. If we consider the vector **B** to be solenoidal, the first term on the right hand side will also vanish due to the fact that the divergence of **B** will be zero.

Hence,

$$\nabla \times (\mathbf{v} \times \mathbf{B}) = - (\mathbf{v}.\nabla)\mathbf{B} \qquad\qquad\qquad \textbf{(2B)}$$

Notes and 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://www.vacuum-physics.com/Maxwell/maxwell_oplf.pdf

[3] The idea that space is densely packed with electrons and positrons was originally conceived in 1982 in an attempt to explain Maxwell's displacement current without altering Ampère's Circuital Law. The idea did not come about in relation to any considerations of the concept of the Dirac Sea. It has since come to light that quite a number of other scientists are advocating such an approach. Since 2004, with the advent of the Internet, discovery has been made of the works of Dr. Menahem Simhony in Jerusalem, and Dr. Allen Rothwarf in the USA, both of whom advocate that space is densely packed with electrons and positrons, and who are referenced at **[4]** and **[9]** below. Ian Montgomery and Peter Whan in Australia are jointly working on a model in which gravity is caused by the flow of a sea of electron-positron couplets into matter, and in which the electron-positron sea, which they term 'The Norton Sea', acts as the luminiferous medium. Arden Barker (Monitek@aol.com) advocates a sea of electron-positron dipoles to act as the carrier of electromagnetic radiation. Ray Fleming in Texas advocates that space is filled with electrons and positrons, and John C. Polasek advocates an electron-positron lattice theory along similar lines to that of Dr. Simhony.

[4] Simhony, M., "The Electron-Positron Lattice Space, Cause of Relativity and Quantum Effects", Physics Section 5, The Hebrew University, Jerusalem (1990)
http://web.archive.org/web/20040606235138/www.word1.co.il/physics/mass.htm

[5] *"Long ago he* (Tesla) *recognized that all perceptible matter comes from a primary substance, or tenuity beyond conception, filling all space, the Akasha or luminiferous ether, acted upon by the life giving Prana or creative force, calling into existence, in never ending cycles all things and phenomena. The primary substance, thrown into infinitesimal whirls of prodigious velocity,*

becomes gross matter; the force subsiding, the motion ceases and matter disappears, reverting to the primary substance."(PRODIGAL GENIUS, Biography of Nikola Tesla, by John J. O'Neill , Freeport, Long Island, New York, 15ᵗʰ July 1944)

The 1937 Encyclopaedia Britannica article on 'Ether' discusses its structure in relation to the cause of the speed of light. It says, "*POSSIBLE STRUCTURE.__ The question arises as to what that velocity can be due to. The most probable surmise or guess at present is that the ether is a perfectly incompressible continuous fluid, in a state of fine-grained vortex motion, circulating with that same enormous speed. For it has been partly, though as yet incompletely, shown that such a vortex fluid would transmit waves of the same general nature as light waves _i.e., periodic disturbances across the line of propagation_ and would transmit them at a rate of the order of magnitude as the vortex or circulation speed - - - -*"

It was not made clear from the article whether or not they were referring to Tesla's theory.

[6] Lewis, G.N., "A Revision of the Fundamental Laws of Matter and Energy", Phil. Mag. **16**, 705-17, (1908)

[7] Leedskalnin, Edward, "Double Helical Electromagnetic Interaction"
http://www.magneticuniverse.com/

[8] Zapffe, C. A., "A Magnetospheric Ether-drag Theory and the Reference Frames of Relativistic Physics", Speculations in Science and Technology, Volume 2, No.4, pp. 439-459, (1979)

[9] Rothwarf, Dr. Allen, "An Aether Model of the Universe" (1998)
http://arxiv.org/abs/astro-ph/0703280