

# The Faraday Motor And The Magnetic Vector Potential

-by-

Jerry E. Bayles  
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All is a vortex, a spinning growing force field without limit over time. The base of action is in the quantum world and the macroscopic world exhibits the microscopic action by the accelerated expansion of the universe as well as the existence of cold dark matter and dark energy. I further posit that the microscopic is connected to what I have termed in my previous works as Energy Space where all matter in our universe is connected together at one point to what is effectively an infinite energy source. Thus the Creator has not orphaned his original creation (initiated by the Big Bang) but has allowed that it will grow without limit. The domain of energy space is not subject to time or distance parameters as is our normal space. Our normal space is that of observable space-time. Thus electrogravitation encompasses Einstein's relativistic observational space time since what is observable will conform to both the Special and General theory of Relativity. Therefore, the action in Electrogravitational Field Theory is via non-local energy space while the reaction occurs in our normal observable space. The result of the total of action and reaction is gravity.

Contained in the magnetic vector potential is the ability to impart momentum to physical objects and a proper understanding of the importance of said potential may well lead to the same forces that propel the universally sighted UFO's.

A click on Faraday Motor link below will show an mpg movie of a quite unconventional direct current motor experiment that has the direct current rotor and magnetic flux inline to each other and yet the rotor wire moves at 90 degrees to both the magnetic flux and the current. This is contrary to the usual diagrams concerning motors having a direct current electromagnet rotor and a magnet for the stator. In the usual case, the magnetic flux is 90 degrees to the current carrying wire in the rotor and a commutator is necessary so that the direct current rotor can change the current direction every 180 degrees of the rotor position. This allows for the rotor magnetic field to properly commute between the steady state magnet poles of a two pole single magnet motor design. See figure 2 below for the diagrammed action.

The recreation of the Faraday motor experiment video was copied from the local PBS channel 8 in Medford, Oregon. Click on the below link for the 13.1 MB mpg format download.

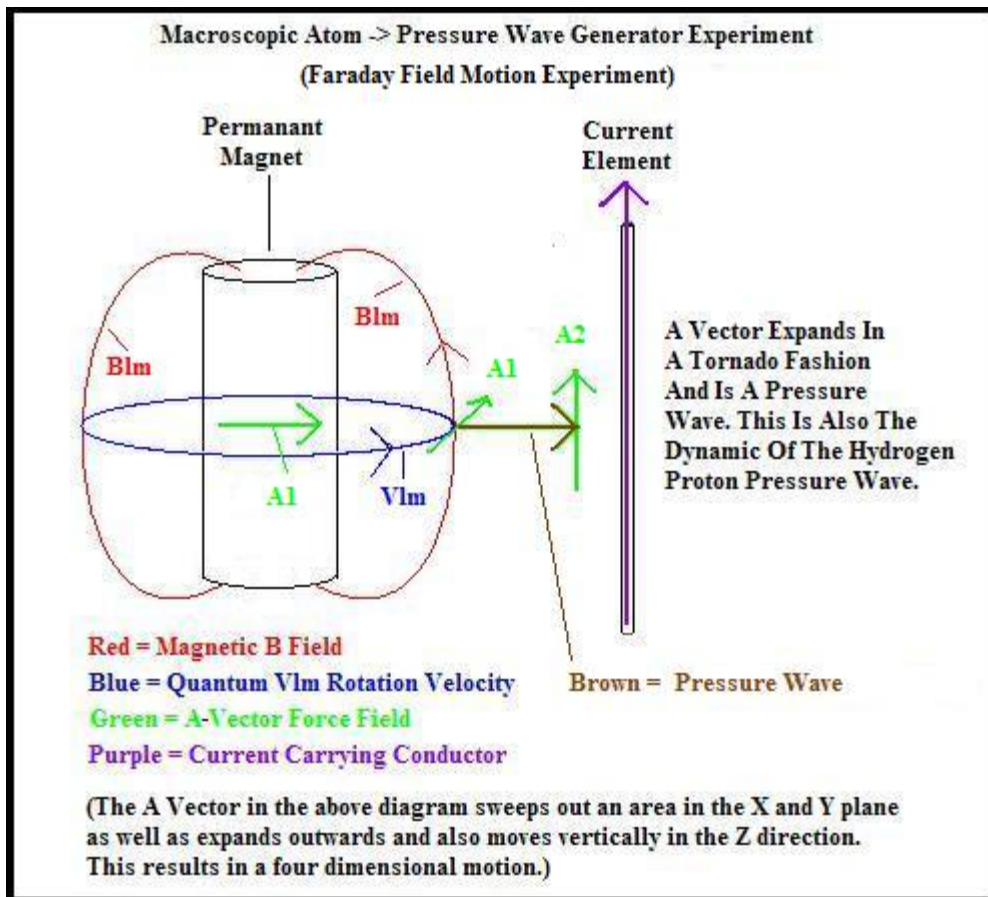
[youtu.be/PwuZ3\\_DR6GY](http://youtu.be/PwuZ3_DR6GY)

Again, the Faraday motor experiment shows a field in motion around the permanent magnet which the current carrying conductor is following at a fixed rate. Further, the current carrying conductor is pushed away from the magnet by an outwards force which I have attributed to a pressure wave much like the pressure wave associated with the proton in my previous works wherein the proton pressure wave results in free energy available from the proton's field if tapped into by allowing the field to expand without being terminated by the companion electron field. When the electron is reintroduced to form the monatomic Hydrogen atom, the outer excess field radiates as useful heat energy.

It will be developed below that the experiment in the above video clip reveals action on a macroscopic scale which compares to the quantum aspects of atomic field dynamics. More concisely, the proton pressure wave of my previous papers. <sup>1</sup> (See reference 1 at the end of this paper.)

Below is a diagram of the Faraday motor experiment in terms of the field action.

**Figure 1**



The A vector is in the direction of current flow and in general is in the direction of momentum related to mass as well as charge. Thus it unites charge and matter into its vector momentum. Further, the A vector cannot be shielded against and moves through ferrous and non ferrous metals as easily as through free space. It is therefore a good candidate for being part of the mechanics of electrogravitational action-reaction since it is known that the gravitational action also cannot be shielded against by ferrous or nonferrous means.

It is of interest that the A vector is fundamentally the permeability of the medium times current. Specifically, the basic quantum units of electrogravitation can be stated as shown below that will then yield fundamental values for the least quantum of the electrogravitational A vector. It is also of interest that charge times the A vector yields momentum and current times the A vector yields force. It will be shown below that this leads us to the fact that an ordinary magnet is continuously radiating a pressure wave outwards that has a rotational vector that resembles a spiral when viewed from the top or bottom of the magnetic poles.

### Statement Of Parameters

3

$f_{LM} := 1.003224805 \cdot 10^{01} \cdot \text{Hz}$	Least quantum electrogravitational frequency.
$\alpha := 7.297353080 \cdot 10^{-03}$	Quantum fine structure constant.
$v_{LM} := (\sqrt{\alpha}) \cdot 1 \cdot \text{m} \cdot \text{sec}^{-1}$	Least quantum electrogravitational velocity. (Also the least quantum magnetic velocity.)
$h := 6.626075500 \cdot 10^{-34} \cdot \text{joule} \cdot \text{sec}$	Planks Constant.
$m_e := 9.109389700 \cdot 10^{-31} \cdot \text{kg}$	Electron rest mass.
$\lambda_{LM} := \frac{h}{m_e \cdot v_{LM}}$	Least quantum electrogravitational wavelength. 1)

Where:  $\lambda_{LM} = 8.5149954162 \times 10^{-3} \text{ m}$

$R_{n1} := 5.291772490 \cdot 10^{-11} \cdot \text{m}$	Bohr n1 radius of the Hydrogen atom.
$\lambda_{n1} := 2 \cdot \pi \cdot R_{n1}$	Bohr n1 Compton wavelength.
$c := 2.997924580 \cdot 10^{08} \cdot \frac{\text{m}}{\text{sec}}$	Speed of light in free space.

There exists a frequency  $f_{MG}$  that is related the to wavelength of the n1 energy level of the Bohr Hydrogen atom and the least quantum electrogravitational velocity  $v_{LM}$  and also is related to the speed of light c.

$$f_{MG} := \frac{v_{LM}}{\lambda_{n1}} \quad \text{where} \quad f_{MG} = 2.5692220900 \times 10^8 \text{ Hz} \quad 2)$$

Also related to the frequency  $f_{MG}$  is a wavelength  $\lambda_{MG}$  that is derived as:

$$\lambda_{MG} := \frac{c}{f_{MG}} \quad \text{where} \quad \lambda_{MG} = 1.1668608143 \times 10^0 \text{ m} \quad 3)$$

Finally, it is demonstrated that  $\lambda_{MG}$  is also related to  $\lambda_{LM}$  by the fine structure constant  $\alpha$ :

$$\frac{\lambda_{LM}}{\lambda_{MG}} = 7.2973531307 \times 10^{-3} \quad \text{where} \quad \alpha = 7.2973530800 \times 10^{-3} \quad 4)$$

The least quantum electrogravitational parameters are unified with the DeBroglie parameters of the atomic scale and with the free space electromagnetic parameters by a single frequency  $f_{MG}$  as demonstrated above. Therefore, it may be considered as a key to operation of the necessary force fields of electrogravitational control as well as energy induction from energy space by the magnetic field.

In figure 1 above there is shown a pressure wave associated with the magnetic potential A vector and the magnetic flux B field. The A vector and the B vector are normal (90 degrees) to each other and both are also normal to the outwards moving pressure wave. The outwards moving pressure wave can be considered to move at the speed of light. The A vector can be associated with the least quantum electrogravitational velocity  $v_{LM}$ . Finally, the B field can be considered as being associated with a phase velocity derived from the speed of light squared divided by  $v_{LM}$  which is considered herein to be a group velocity.

The phase velocity associated with the magnetic flux represented by the letter B is:

$$v_{BP} := \frac{c^2}{v_{LM}} \quad \text{where,} \quad v_{BP} = 1.0521041311 \times 10^{18} \frac{\text{m}}{\text{s}} \quad 5)$$

The phase velocity above is large indeed and represents the speed that the magnetic flux attains in order to close the loop that defines a magnetic line of force. The slow orthogonal rotational motion of the B field is represented by the  $v_{LM}$  velocity which is the group velocity. The square root of the product of the group and phase velocities is the speed of light  $c$  which represents the speed of the outgoing pressure wave as shown in figure 1 above.

$$\sqrt{v_{LM} \cdot v_{BP}} = 2.9979245800 \times 10^8 \frac{\text{m}}{\text{s}} \quad \text{where,} \quad c = 2.9979245800 \times 10^8 \frac{\text{m}}{\text{s}} \quad 6)$$

It turns out that the Compton time of the electron times the phase velocity of the magnetic field B yields the least quantum electrogravitational wavelength  $\lambda_{LM}$ .

$$t_e := \frac{h}{m_e \cdot c^2} \quad \text{where,} \quad t_e = 8.0933009996 \times 10^{-21} \text{ s} \quad 7)$$

$$\text{and where,} \quad t_e \cdot v_{BP} = 8.5149954162 \times 10^{-3} \text{ m} \quad \text{and} \quad \lambda_{LM} = 8.5149954162 \times 10^{-3} \text{ m} \quad 8)$$

The ability of the magnetic field to grow without limit throughout all of space is proof of the free energy available in the field which in my conceptual view comes from energy space which is that same space that supplied the energy to initiate the Big Bang in the very beginning of the universe. That same energy space is still supplying energy via the fields of the basic particles and as a result may end up as the so called dark energy that is causing the accelerated expansion of the universe. It is my postulate that it is the centers of the charged particles that is connected to energy space in a pulsed gate fashion similar to what is called in transient analysis mathematics the weighted impulse function which is a form of the Dirac delta function. It has been demonstrated that a strong enough magnetic field can suspend a live frog with the associated pressure wave of that same field without harming the frog. The pressure wave works on the individual particles on the quantum scale in a collective manner much as gravity does.

It is reasonable to assign a medium specific to the electrogravitational action field which is different than the free space permeability  $\mu_0$ . For instance, there is a least quantum inductance that can be derived from the quantum hall ohm and the fundamental electrogravitational rotation frequency  $f_{LM}$  as follows:

Let:  $R_Q := 2.581280560 \cdot 10^{04} \cdot \text{ohm}$  Quantum Hall ohm.

Then:  $L_Q := \frac{R_Q}{f_{LM}}$  or,  $L_Q = 2.5729831909 \times 10^3 \text{ henry}$  Now also let: 9)

$\Phi_0 := 2.067834610 \cdot 10^{-15} \cdot \text{weber}$  Fluxoid quantum  $q_0 := 1.602177330 \cdot 10^{-19} \cdot \text{coul}$  Electron charge.

Then an alternate L solution:  $L_{Qalt} := \frac{2 \cdot \Phi_0}{q_0 \cdot f_{LM}}$  where,  $L_{Qalt} = 2.5729832061 \times 10^3 \text{ henry}$  10)

Permeability is expressed in henry per meter units so the above inductance is divided by  $\lambda_{MG}$  to arrive at:

$$\mu_{LM} := \frac{L_Q}{\lambda_{MG}} \quad \text{or,} \quad \mu_{LM} = 2.2050472168 \times 10^3 \frac{\text{henry}}{\text{m}} \quad 11)$$

Compare the electrogravitational permeability result with the free space electromagnetic result:

$$\mu_0 := 1.256637061 \cdot 10^{-06} \cdot \frac{\text{henry}}{\text{m}} \quad \text{Magnetic permeability of free space.}$$

In the above we are dealing with one electron. The results will be much larger when dealing with a number of electrons equal to 1 amp per second past a given point.

Let N = the number of amps which will initially be set as 1 for this work.  $N := 1.0 \cdot \text{amp}$

$$N_{\text{amp}} := N \cdot \frac{1 \cdot \text{sec}}{q_0} \quad N_{\text{amp}} = 6.2415063631 \times 10^{18} \quad \text{electrons per second.} \quad 12)$$

From the above parameters, we may now define the A and B vectors and current fields as follows:

$$i_{LM} := q_0 \cdot f_{LM} \cdot N_{\text{amp}} \quad i_{LM} = 1.0032248050 \times 10^1 \text{ amp} \quad 13)$$

$$A_{LM} := \mu_{LM} \cdot i_{LM} \quad A_{LM} = 2.2121580641 \times 10^4 \frac{\text{weber}}{\text{m}} \quad 14)$$

$$B_{LM} := \frac{\mu_{LM} \cdot i_{LM}}{\lambda_{MG}} \quad B_{LM} = 1.8958199959 \times 10^4 \frac{\text{weber}}{\text{m}^2} \quad 15)$$

An alternate method for B based on the permeability of free space is:

$$B_{\mu o} := \frac{\mu_o \cdot i_{LM}}{4 \cdot \pi \cdot R_{n1}} \quad \text{where,} \quad B_{\mu o} = 1.8958199857 \times 10^4 \frac{\text{weber}}{\text{m}^2} \quad 16)$$

Note that  $R_{n1}$  times  $\alpha$  is the Compton radius of the electron.

Then finally, the pressure wave is found to be the cross product of A and B as:

$$S_{P1} := \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}} \\ -A_{LM} \\ 0 \cdot \frac{\text{weber}}{\text{m}} \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o} \end{pmatrix} \begin{matrix} X \\ Y \\ Z \end{matrix} \quad S_{P1} = \begin{pmatrix} -4.1938534695 \times 10^8 \\ 0.0000000000 \times 10^0 \\ 0.0000000000 \times 10^0 \end{pmatrix} \text{henry} \cdot \text{Pa} \quad 17)$$

(The above vectors are in the Cartesian coordinate system, X, Y and Z from top to bottom respectively.)

The above result is very large and may not be observed with the geometry and current parameters being used above. Therefore, a mixed form of B where  $\mu_o$  and the quantum and electromagnetic geometrical parameter  $\lambda_{MG}$  can be used instead.

$$B_{\mu o \lambda MG} := \frac{\mu_o \cdot i_{LM}}{\lambda_{MG}} \quad B_{\mu o \lambda MG} = 1.0804111811 \times 10^{-5} \frac{\text{weber}}{\text{m}^2} \quad 18)$$

$$S_{P2} := \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}} \\ -A_{LM} \\ 0 \cdot \frac{\text{weber}}{\text{m}} \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o \lambda MG} \end{pmatrix} \quad \text{where,} \quad S_{P2} = \begin{pmatrix} -2.3900403067 \times 10^{-1} \\ 0.0000000000 \times 10^0 \\ 0.0000000000 \times 10^0 \end{pmatrix} \text{henry} \cdot \text{Pa} \quad 19)$$

The above result in  $S_{P2}$  is much less than for  $S_{P1}$  and is more of an expected result.

The pressure wave will increase as the square of the current. For a 100 ampere current, the value in  $S_{P2}$  will be 10,000 times larger. The conclusion is obvious. This approach is enough to lift a large craft with ease.

**To use the pressure wave, asymmetry can be introduced by an adjacent current element as shown in figure 1.** The adjacent current element may be used to cause a directional projection of the force field resulting from the pressure wave and the fixed current element. This current element can also move if free to do so as shown in the video link above.

The external current element can be used to introduce asymmetry into the uniform pressure field and therefore cause a force unbalance that can do work on the system so as to move it in the desired direction.

$$S_{Dir} := \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}} \\ -A_{LM} \\ 0 \cdot \frac{\text{weber}}{\text{m}} \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o \lambda MG} \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o \lambda MG} \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \end{pmatrix} \quad S_{Dir} = \begin{pmatrix} 0.0000000000 \times 10^0 \\ 0.0000000000 \times 10^0 \\ -2.5822262705 \times 10^{-6} \end{pmatrix} \text{Pa} \frac{\text{newton}^2}{\text{amp}^3} \quad (20)$$

The outward moving pressure wave is divorced from the magnetic field proper and therefore can be used to move the entire system via Newton's law of every action engenders an opposite and equal reaction even if the magnet and the current are connected to a common support. This is by reason that the pressure wave has its own inertia and can be regarded as a separate entity, much as for a photon. The result above now varies as the cube of the current. The negative result is for a downward moving force field pressure wave.

The pressure wave can be examined for the reaction pressure for a range of 1 to 100 amperes:

Let  $\Delta N$  = the range variable multiplier of amperage.  $\Delta N := 1.00, 1.01 \dots 10$

$$\text{Then:} \quad N_{\text{amp}}(\Delta N) := 1 \cdot \frac{\text{amp} \cdot \text{sec}}{q_o} \cdot \Delta N \quad (21)$$

From the above variable current parameters, we may now define the variables of the current  $\Delta i_{LM}$  as well as the associated  $\Delta A$  and  $\Delta B$  vectors as follows:

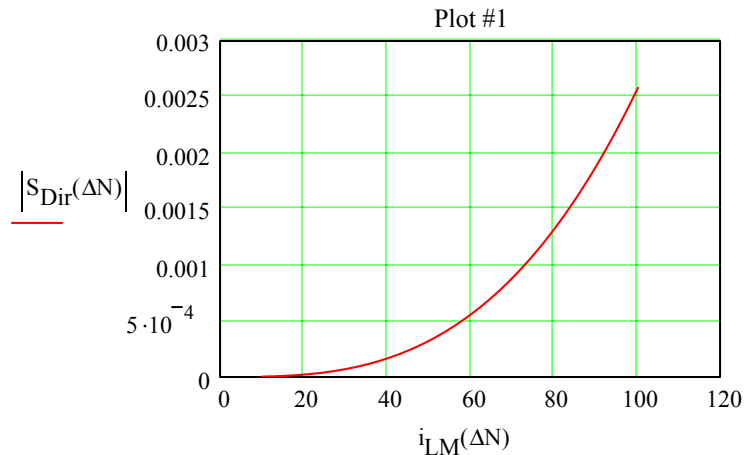
$$i_{LM}(\Delta N) := q_o \cdot f_{LM} \cdot N_{\text{amp}}(\Delta N) \quad A_{LM}(\Delta N) := \mu_{LM} \cdot i_{LM}(\Delta N) \quad B_{\mu o \lambda MG}(\Delta N) := \frac{\mu_o \cdot i_{LM}(\Delta N)}{\lambda_{MG}}$$

The resulting vertical force field is defined between 10 and 100 amperes as:

$$\begin{array}{cc} \text{[ Magnet Pressure Wave Field ]} & \text{[ Current Rod ]} \end{array}$$

$$S_{Dir}(\Delta N) := \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}} \\ -A_{LM}(\Delta N) \\ 0 \cdot \frac{\text{weber}}{\text{m}} \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o \lambda MG}(\Delta N) \end{pmatrix} \times \begin{pmatrix} 0 \cdot \frac{\text{weber}}{\text{m}^2} \\ B_{\mu o \lambda MG}(\Delta N) \\ 0 \cdot \frac{\text{weber}}{\text{m}^2} \end{pmatrix} \quad (22)$$

The plot below shows that for a given wavelength equal to  $\lambda_{MG}$ , the vertical force field pressure varies as the cube of the current.



In the above plot, the force field  $S_{Dir}(\Delta N)$  term is bracketed to allow for the fact that the above Mathcad plotter only allows for a scalar input.

The Faraday motor as demonstrated by the above video uses a permanent magnet and a d.c. current in the rotor wire. The direction of rotation should remain the same if the direction of the magnetic flux from the magnet as well as the direction of current flow in the rotor wire are both changed simultaneously. Further, the direction of the pressure wave will also continue to be moving outwards. This may be an advantage from the standpoint of resonance where a strong impulse can cause a resonant circuit to ring in the form of a damped wave and if the circuit has low losses, the resonance will allow for the alternating current to continue without further input for an appreciable time. The frequency of resonance may be chosen to be equal to the  $f_{MG}$  frequency. Thus, the magnet can now be an electromagnet and capacitor arrangement.

The importance of the difference in the mode of operation between the Faraday motor experiment and an ordinary d.c. motor cannot be overstated. In the above video we see that the current carrying rotor wire carries current inline or parallel to the magnet's magnetic flux lines. This is contrary to the contemporary understanding and use of the magnetic flux orientation with respect to the direction of the rotor current in a d.c. motor. Without seeing the Faraday experiment the conclusion as to whether the wire would even move would most likely be that it would not. This is due to the contemporary teaching that a current carrying wire parallel to the magnetic flux is not expected to move at all. The above video obviously refutes that conclusion. Further, the method of motion is quite likely tied to a circular motion of the field that may be considered to be 90 degrees to the direction of the flux lines of the magnet. The heart of the mechanics of proton pressure wave dynamics and thus free energy may be tied to the macroscopic form inherent in Faraday's motor experiment as presented in the above video link. Of a related note, the below link points to a short video that shows a craft that may be based directly on the mechanics of this analysis.

GO: [youtu.be/7G1-qud1kOI](https://youtu.be/7G1-qud1kOI)

The vertical rods may be coaxial current elements and the magnetic field developed in a flat base coil. Notice the craft's rotation as the current elements follow the magnetic A vector ( $V_{LM}$ ) field rotation.



Figure 2: (From Modern Technical Physics, Beiser, Arthur, 1966 by Cummings Publishing Co.)

## 26-8 THE DC ELECTRIC MOTOR

The torque which a magnetic field exerts on a current loop disappears when the loop turns so that its plane is perpendicular to the field direction. If the loop swings past this position, the torque on it will be in the opposite sense and will return the loop to the perpendicular orientation. In order to construct a motor capable of continuous rotation, then, the current in the loop must be automatically reversed each time it turns through  $180^\circ$ . The method by which this reversal is accomplished is shown in Fig. 26-13. The current is led to the loop by means of graphite rods called *brushes* which

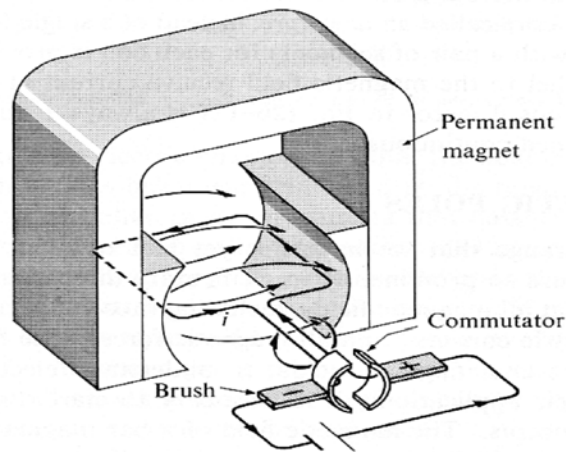


FIG. 26-13. A simple dc electric motor. The commutator automatically reverses the current in the rotating loop twice per rotation so that the torque will stay in the same direction.

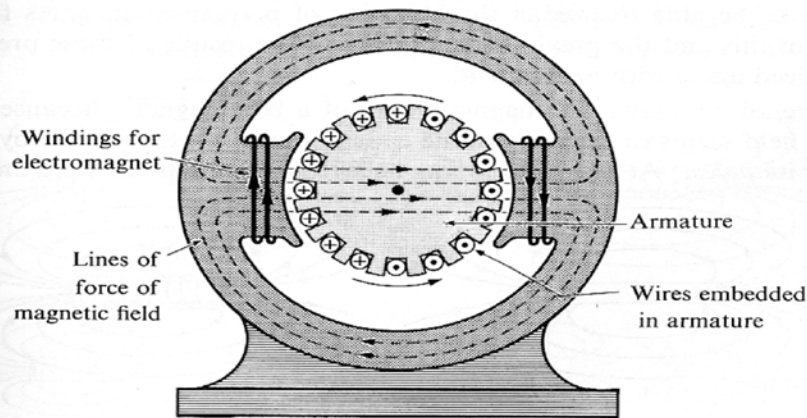


FIG. 26-14. Actual dc electric motors employ various means to increase the available torque.

In figure 2 above the contemporary design of the d.c. electric motor has the magnetic flux lines 90 degrees to the current carrying rotor wires. This is contrary to the Faraday motor experiment in the above video link on page 1.

In the video of the Faraday motor experiment (link on page 1) the statement is made by the off screen narrator, "This is the experiment of the century!" I do not know if he simply means that it is the experiment of the century because it lead to the development of the electric motor but the experiment's true importance is much greater than that of the electric motor.

The experiment reveals a component of motion that must have an expanding and rotating field which directly implies an outward flow of energy, ad infinitum. This is the case for the experiment as well as for my interpretation of the Hydrogen proton pressure wave. Not only is a source of energy inherent in the so-called 'static' magnetic field, but a means of propulsion and lift for a ufo style craft. All of this is lost if we simply take the experiment as the beginning of the development of the electric motor, which has been shown to rely on different design criteria than Faraday's experiment reveals.

A related paper that also implies that there is also a connection to the ordinary electromagnetic field as well as the magnetic VLM velocity wherein momentum is related to the square root of 2 and energy to the square root of the Golden Ratio.

GO: <http://www.electrogravity.com/LorentzSolve/LorentzSolve.pdf>

The shape of the expanding magnetic rotating field may be represented by the animation on the main page of my web site at:

GO: <http://www.electrogravity.com>

#### **Conclusion:**

There is a free lunch. The entire universe is a free lunch. The above analysis of the Faraday rotating field magnetic motor is another example of how we must view electric and magnetic fields as always having the potential for unlimited growth and that they should not be viewed as static in any case. There is always energy dynamics regarding fields that give rise to any form of force, be it potential or kinetic.

The dynamics of force fields as described above gives the expression "free flight" a whole new meaning.

$\Omega$

#### **Reference:**

1. [http://www.electrogravity.com/HydDisEnergy/HydDisEnergy\\_1.pdf](http://www.electrogravity.com/HydDisEnergy/HydDisEnergy_1.pdf)