ENERGY SCIENCE: A BRIEF REVIEW AND A CONCLUSION

Introduction

Exploring the scope for tapping energy from a new and non-conventional source is a research pursuit of a few worthy individuals, very few, in comparison with the many, very many, highly qualified scientists who work in the power industry. We need that new source of energy because our oil and gas reserves are being rapidly depleted, because reverting to burning coal, which also cannot last for ever, creates pollution and because nuclear power involves other dangers.

In a perfect world we would have come to understand how what we see around us was created, meaning finding the answer to the question: "Where did the energy needed come from?" and then discovering how we can harness that mystery energy resource. Understanding Creation is not just an act of faith based on religious doctrine, nor can we rely 100% on the doctrinaire principles of science of modern physics. Something else is needed. Fortunately, there is now enough evidence of record to justify enquiry which probes into the secret world of energy science.

What follows is a brief review, a summary, of my own efforts in recent years, followed by a culminating conclusion which may inspire others to undertake further work of their own. If future generations are to survive by relying on power from windmills, then let us just hope that there are those who, in the spirit of Don Quixote, find the energy needed to meet the challenge.

Concerning Nuclear Energy

Our ability to harness atomic power, a by-product of atomic weapon research, does not mean, as most physicists accept, that the heat generated within the sun and which, by its radiation, keeps the Earth warm is the product of a nuclear reaction at the sun's centre. Gravitation pulls the sun's hydrogen atoms so close together that their electrons collide and cause ionization. Protons are freed along with electrons. Then, because two protons interact gravitationally to set up an acceleration rate that is 1836 times that applicable between two electrons, the ionized plasma we see as the body of our sun contains more protons than electrons, leaving a surplus of electrons at its boundary surface. There is therefore a balance of gravitational compression pressure and electrostatic expansion pressure throughout the body of the sun, meaning it has a uniform mass density, and there is no reason to think that its temperature at its centre is any different from that at its surface. Its core temperature is not sufficient to account for nuclear reaction. Instead, the quantum interplay between the hydrogen atom and the underworld medium that fills all space sustains the atom's electron motion, thereby having supplied the energy needed to ionize when gravity brings hydrogen atoms into collision, but duly replenishing energy that might be lost by radiation, once free electrons are captured by free protons to restore the atomic hydrogen form.

The quantum underworld, the space medium, the aether is the energy source, not nuclear power! We are therefore being misled. It is one thing to build more and more nuclear power plants to meet future needs but quite another to do so thinking that we are merely replicating Nature's processes at work in the sun and so be blind as to the true source of energy.

Indeed, one might say that it is the energy of the quantum underworld that, in sustaining the sun's energy radiation, controls the weather on Earth and so empowers those windmills that provide the alternative to nuclear power. On such a foundation one must see sense in looking for ways to tap energy directly from that all-pervading quantum underworld energy source, confident that it must be possible. Then, guided by certain reports of historical record, there is a path to follow, but it is not an easy path as there are sidetracks than can lead nowhere and so frustrate one's efforts.

The Governing Rules

There are two governing rules or 'principles' that dominate energy science. One is the Principle of Conservation of Energy and the other is the Principle that Action and Reaction are equal and opposite. Teachers of physics expect us to accept these without question, as they form the bedrock on which they build, sure in the knowledge that experience over time has proved their validity.

Yet when they discuss energy deployment as it applies to the real world of technology they do not even contemplate the quantum underworld of space and ask whether energy balance and so its conservation can include the latter. Energy conservation does not mean that we cannot transfer energy from that quantum underworld and bring it into the apparatus of our real world. The notions of the high energy particle physicist concerning the interplay between electron-positron creation and decay and photons do imply energy conservation as between matter and the space medium but, for some mysterious reason, such physicists are not open minded when it comes to tapping energy from that vacuum medium.

As to the action and reaction theme, this happens to be enshrined in Newton's Third Law of Motion and so is taken as beyond question, but yet physics is taught also by reference to the Lorentz force law which, as applied generally between two electrons in motion, breaches Newton's Third Law, unless the force acting on one of those electrons is calculated as the average force on the basis of the other electron describing a closed circuital path.

So, you see, when it comes to convincing those who govern opinion on what is possible and what is not possible there is uncharted energy territory to be explored in an effort to tap energy from space, but yet we confront unwarranted hostility and ridicule for aiming at the impossible.

My Research

My Ph.D. research addressed the problem of anomalous excess energy loss in the magnetization processes at work in transformer cores. That was back in the years 1950-1953 and I was destined to pursue a professional career peripheral to the research field, one concerned with evaluating and protecting inventions stemming from research in the electrical power industry and electronics. However, as early as 1956, I privately researched a few theoretical ideas of my own, one being an attempt to understand how energy is stored in the vacuum medium. I concluded that the medium reacts to the presence of a magnetic

field as if it is the seat of electric charge in motion that can act in opposition to the applied field. Energy criteria, meaning maximum amount of energy transferred to the medium, indicated that the reaction would be one that is exactly half the strength of the applied field. I saw this as resolving an anomaly in physics, one which had mistakenly given birth to the notion of so-called 'spin', the half-quantum state that supposedly explained the primary factor-of-two implicit in what is known as the gyromagnetic ratio.

This was theoretical physics. It caused me to see the need to understand how the aether was structured, taking account of all the problems that had beset belief in the aether and caused its demise from the physics curriculum and its replacement by Einstein's notion of space-time. Apart from my onward theory leading to an insight into the cause of gravity and how protons are created an early conclusion was that the creation of an electric field radially directed from an axis would induce aether spin about that axis. The energy inflow from the aether needed to account for that state of spin was found to equal the energy supplied in creating that electric field.

This all being a theoretical and not a technological interest, I soon found that I could explain how stars are created and why they spin, apparently in breach of the physicist's rule that angular momentum must be conserved. To say a star spins poses the question of how it acquires its angular momentum, but that was answered by my theory as all I had to explain is how the star acquires the electric core charge within a balancing surface charge, and the explanation of that is presented above under that heading 'Concerning Nuclear Energy'. The aether provides the angular momentum, it having a vast store of angular momentum by virtue of its quantum activity in the form of its electric charge having a jitter motion, the basis of Heisenberg's Zitter-bewegung and so his Principle of Uncertainty.

When I did, after some 30 years in industry, move to a 'retirement' position for 9 years as a Visiting Senior Research Fellow at the university local to my home town, my research was aimed at advancing my theory rather than efforts to tap energy from the aether. Interest in the latter theme was aroused, however, during the latter part of that 9-year period and has prevailed ever since.

I became involved with motor experiments based on rotating an electrically conductive rotor magnetized parallel to the axis of rotation, this involving induction of an electric field radially directed with respect to the axis of spin. The object, by analogy with the action that imports energy and angular momentum from the aether when a star is formed, was to see if the motor behaved anomalously. The experiments proved positive and confirmed the speculation involved, but were not extended, there being an impractical feature in that, to import energy steadily from the quantum underworld, the action had to be pulsed. To have a pulsating magnetic field acting through the plane of a conductive rotor disc implies eddy current loss and limits possible speed of operation. That meant that there was little, if any, scope for any practical application leading to technology that could serve as a future power source. Other ideas involving motors did emerge but proved equally disappointing. Accordingly, it seemed best to switch interest to devices that are essentially solid-state and static in operation.

Then the day came when, after pondering over the reports of the findings of Dr. Henry Moray back in the 1930 period said to tap energy from the atmosphere by the use of an overhead wire connection to a capacitor apparatus as well as the information concerning the modern day Methernitha apparatus, which incorporates large capacitors in the form of Leyden jars, I concluded that here were devices that set up a pulsating radially

directed electric field and import energy by aether spin. I saw this as analogous to my efforts on motors and my interpretation of how a star develops its state of spin. That was in the early months of 2002 and it seemed an appropriate topic to address as an invited speaker at a conference held in Berlin in June of that year. Not having verified operability but yet being about to disclose this at that conference, I deemed it prudent to file a patent application in U.K. before speaking at that event and so my Patent Application GB 2390941A was duly filed and then eventually published on 21st January, 2004.

Not surprisingly, this has raised questions by those who saw this printed publication almost immediately after it appeared and so I submitted an article on the subject which has appeared in at pp. 19-25 of Issue 55, **v. 10**, 2004 of *'Infinite Energy'*. Meanwhile experimental work has been undertaken and the bad news is that there is no energy excess developed, at least on a practical scale which needs the apparatus to operate at high voltage of the order of 10 kV and fairly high frequency of the order of 100 kHz.

This means that the angular momentum of the aether spin developed by successive pulsations, at a frequency far exceeding the pulsation rate of a hundred cycles per second as used in my motor research, cannot slow down and convert its spin energy into electrical form fast enough to be captured as output upon capacitor discharge and so deliver useful power output.

Hence that capacitor theme is not the answer to the riddle posed by the Moray and Methernitha route to generation of what has come to be known as 'free energy'.

The Conclusion

This brings my efforts to a conclusion, but a conclusion that still offers hope. Being forced to look once again at the common factors evident in the Moray and Methernitha projects there is the possibility that what Dr. Moray meant by the reference to his dependence upon the availability of Swedish stone implies magnetically polarized magnetite, otherwise known as lodestone. The Methernitha apparatus used horsehoe magnets and had coils of wire conductor wound around the legs of the horseshoe form. Moray could have had coils wrapped around a lodestone core. Then there is what has been reported concerning the findings of Hans Coler in Germany in the years preceding and during World War II.. Coler had coils wrapped around bar magnets and generated electrical power output with no other input power connections.

So, in asking myself how it can make sense to take a material already magnetized and then pulse it magnetically by developing electric current oscillations in an enveloping winding, I was surprised to find that I was led to ask myself another question. We know that oscillating current in a solenoid enclosing a magnetic core will produce an oscillating magnetic flux over the whole cross-section of the core. A back EMF is produced which means that we feed energy into the solenoid as current strength increases and a forward EMF is induced which returns that energy as current strength decreases. This is the phenomenon of inductance.

Now, within that core, it having ferromagnetic properties, there are atoms containing electrons in orbit, the 3d-state electrons in iron, for example, and as these turn to augment the magnetic flux when the solenoid current increases so whatever it is that powers the motion of those electrons will also experience a back EMF and so involve inflow of energy. Then, of course, one might expect as the current subsides so there will be a return of energy to those 3d-state electrons in their orbital motion. That makes sense

and is a natural assumption once that aspect of the magnetization process is considered. However, here now is that other question.

How does the energy shed by the 3d-state electrons and stored pending its return force its way back by passage through the limited area of those electron orbits? EMFs are induced as a function of flux linkage by the current loops involved. Yes, I certainly knew how the magnetic field energy is stored. That is the basis of aether charge reaction theme by which I explained that gyromagnetic ratio factor-of-2. But here one has a reacting field system that is uniform across the area of the magnetic core. Logically, therefore, since only a fraction of that area is accounted for by the 3d-state electron orbits, two per atom for iron, then only of fraction of energy shed by the quantum underworld that powers the electron motion can be returned to that medium as the magnetic field subsides in strength. This has to be the case unless one is to accept the belief that there is no field reaction such as I suggested years ago and that instead there are merely lines of magnetic flux having a physical reality that somehow store energy. Such flux lines would need to be rigid in their spatial fixation in relation to the source current orbits with the degree of their numerical concentration being a measure of the energy density involved. To me, lines of magnetic flux are merely notional, a way of portraying how energy in a magnetic field spreads itself in surrounding space but not of themselves having any real physical form.

So you can see how I am led to believe that a magnet might be caused to shed energy drawn from the quantum underworld of space and have no direct way for its atoms to recapture that energy. Here I am treading more familiar ground, three years of experimental Ph.D. research being concerned with magnetic hysteresis loss and associated eddy current loss.

Once I had this idea of a magnetic core shedding energy that it could not recover, I asked myself what we really know about the process producing hysteresis loss. In my Ph.D. years it was something one could dismiss as being due to sudden erratic movements of magnetic domain walls as inclusions are encountered by those walls as the domains they bound grow and shrink with reorientation of magnetic direction in the ferromagnetic crystals involved. Hysteresis loss was accepted as a fact, an unavoidable phenomenon that one finds in magnetic cores, though one that is of less importance in well annealed cores of high purity that have a high magnetic permeability property. My research concerned measurement of loss aimed at studying how it changed under different conditions, including internal mechanical stress as well as stress applied externally as well, of course, with variation in frequency and superimposed states of magnetic polarization.

With this new thought in mind, I enquired into the energy process involved in a cycle of magnetization around the whole of an imaginary truly-rectangular form of B-H loop, a close approximation to the actual form applicable to closed magnetic cores having no air gaps. The magnetizing solenoid inputs energy in proportion to HB, because H is a measure the current in the solenoid and the rate of change of B is a measure of the back EMF resisting current flow. That applies to the right-hand side of the loop. The left-hand side represents further input from the solenoid in proportion to (-H)(-B) and because this equals BH, the overall energy input from the solenoid is 2BH. With B in gauss and H in oersteds this, divided by 8π, is a measure of hysteresis loss measured in ergs per cc. per cycle. The top side represents outflow of energy because, ignoring the small H component of B, B is effectively the notional current action of the 3d-state electron orbits in the core, and the rate of change of H, which is negative, is the effective flux density change that accounts for an induced EMF. So, in theory, for 100% flux coupling with those orbits, the

quantity B(-H) is the measure of energy change involved, suggesting that the energy BH fed in during loop passage up the right-hand side and also along the top side is transferred as input to the quantum underworld of space. Similarly the energy represented by (-B)H applies to energy transfer along the bottom line of the loop, meaning it drains away the energy supplied during the left-hand side downward step.

All this amounts to the whole loss defined by the area of the hysteresis loop being supplied by the solenoid and fed into the quantum underworld of space, the very reverse of what we aim to achieve. However, though experiment confirms that loss, we know that it does, at least for its major part, stay with us in the real world by appearing as heat in the core. So here then is the proof that, as atomic theory tells us anyway, those 3d-state electron orbits are too small to capture the full measure of energy shed by the magnetization process.

Now the symmetrical B-H loop is characteristic of a ferromagnetic core that is not polarized as one finds in magnets. Once a certain H value is reached by increasing magnetizing current the domain wall movement that accounts for the width of the hysteresis loop, the so-called coercive force, no longer occurs and any onward magnetization arises from those 3d-state electron orbits turning towards the direction of magnetization, virtually a loss-free process apart from eddy current effects. This takes us to a roughly linear range of magnetization where B and H increase or decrease in proportion. Over this range increase of B involves energy input from the solenoid proportional to $H\delta B$, where δB is the change of B over that range. However, here we now also have energy input from the quantum underworld in measure given by $B\delta H$, where δH is the change of H over that same range. Given that B is proportional to H over this range these energy quantities are equal. So we expect the inflow of energy from the quantum underworld to match that supplied via the solenoid.

Furthermore, during the downward half of a cycle of magnetization over that limited range although energy is returned to the solenoid as expected owing to the inductance property, most of that energy tapped from space cannot, from the evidence we have of hysteresis loss phenomena, go back into the quantum underworld. Here then we see a glimmer of a possibility in our search for a free energy source. Either that energy is shed as heat or it is amenable to capture in its electrical form.

So now consider why it is that it has eluded notice in laboratory experiments in university laboratories. Where is the evidence of tests on the rapid oscillatory excitation of a ferromagnetic core over a range above the territory of hysteresis loss, that being at a flux density level in the region of 70% of saturation? No one would undertake such an experiment ever expecting to gain energy especially as the obvious expectation is increased loss of energy.

However, the Cambridge professor who was head of the Department of Electrical Engineering during my Ph.D. years at Cambridge did report an experiment magnetizing an iron core including a variable air gap which purported to measure leakage inductance as a function of the gap width. What his experiment proved was that as the gap width increased, for a given level of magnetic flux linking the magnetizing winding, it needed less current than expected to sustain that level of flux. In other words, either there was flux leakage, meaning flux that somehow avoided the gap, as the professor assumed, or there was more magnetic energy fed into the air gap than was supplied by the magnetizing winding. When I eventually did repeat the experiment under conditions which assured flux passage around the whole core, including air gap, I proved that the latter interpretation was

correct. The experimental data I proved that the energy in a gap of 2.25 mm width in a small 100 VA transformer core is as much as 180% of the input energy, which is supporting proof for what is suggested above. This experiment is described under the heading 'Mystery Energy Source: The Energy Balance Sheet' in my Energy Science Report No. 1 of record on the web site www.aspden.org where I then examined the prospect of generating 'free energy' based on motor technology which exploits the excess energy fed into magnetic pole gaps by reference to the Adams motor.

You see, here I was thinking that to tap that excess energy, the 'free energy' supplied by the aether, we would need to harness motor technology, whereas, now that I realise that the extra inductance energy cannot all by drawn back into the aether as the current drops, a new horizon appears. Solid-state aether power generation now becomes a possibility, shedding light helpful in our onward energy quest. Ferromagnetism becomes the doorway for energy inflow.

Moray's experiments seem to have been motivated by attempts to tap energy from the atmospheric electric field, inspired perhaps by Tesla's pioneer efforts, whereas Coler might have been dabbling with efforts to sense radio signals based on coils wound around a bar magnet as an antenna and the Methernitha experiments may well have arisen from hearsay about the prior claims of both Moray and Coler. All three incorporated capacitors and certainly two, if not also Moray's apparatus, had provision for two magnet systems to operate in a push-pull fashion with one generating power it its forward current half-cycle as the other resets in its reverse current half cycle. All three had some means for triggering the active state, be it Moray's aerial wire, the Wimshurst machine of the Methernitha project, or, as in the case of Coler, patience in an environment active in long wave radiation, patience being needed to get the tuning right at an appropriate time of transmission, given that his coil-wound magnets were, in effect, antennae and his apparatus was known to operate at a frequency above 100 kHz. These signal triggering components could not have been the real energy source powering the apparatus once it had become operative.

Now, reverting to that B-H loop theme, with permanent magnet cores in mind, the cycle of magnetization has to centre about the working point at which BH is a maximum in the upper left-hand sector of the loop. Small field oscillations of H about this point will produce variation of B and H around a thin minor hysteresis loop angled upwards from left to right and corresponding to a substantial increase of B for a small increase of H but with a very substantial base value of B. From the above discussion of energy deployment in cores that are ferromagnetic but not magnets operated over that linear range of magnetism at the B-H loop extremity one can then see how such a situation for a magnet implies the energy inflow from the quantum underworld of space. The hysteresis loss would be quite low in relation to the power gain.

Such, therefore, is my verdict, my final verdict, I expect, as to how I believe the three free energy devices under discussion function. Knowing where and how the inflow energy enters the apparatus then leaves open the question as to how to extract that energy as useful electrical power output, followed by the key question as to how the process can be scaled up to prove viable as a major commercial power source.

The latter question is not too difficult to answer, bearing in mind that on a large scale magnets as such are not essential as one can replicate the effects by polarizing large iron cores using superconductive excitation coils that absorb little energy. Operation at kHz frequencies may be needed and this involves eddy-current losses but the flux density

range of oscillation can be commensurately small to contain that to the normal level of loss in laminated steel cores we see in power transformers.

The former question is the challenge and Coler's apparatus affords guidance as to the coil connections required, though I feel sure his provision for current in the coils flowing also through the body of the bar magnets used is not necessary.

A Final Note

I have decided to publish this at this time because I am obliged to record that the capacitor experiments have proved abortive. I expect now to abandon the patent application mentioned in my article on that subject in *'Infinite Energy'*. Furthermore, I shall not be filing a patent application covering what I have disclosed here concerning magnetic cores as a new source of power, bearing in mind the relevance of the disclosure concerning Coler's apparatus that became public when Official Secrecy on the related British Intelligence Report ended.

Whether or not my onward efforts, including experiments on the subject of this Note, will bear fruit remains to be seen, but I can say that, from now on, I am concentrating on revising and consolidating my position on *'The Physics of Creation'* that features prominently on this web site www.aspden.org .

For detailed information on the Coler Report just referenced see Lecture No. 7 in the Energy Science sector of this web site.

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