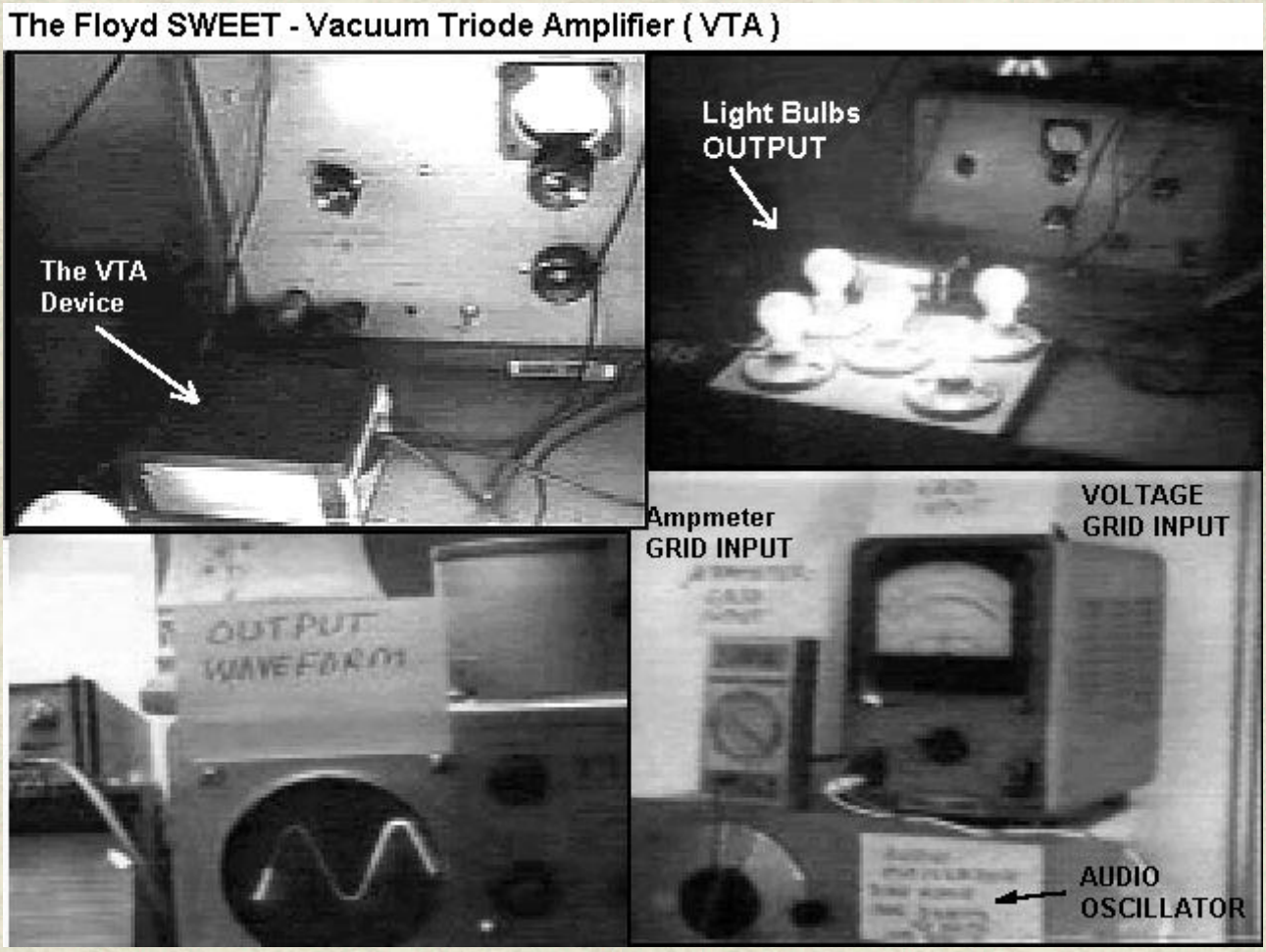
The Floyd SWEET - Vacuum Triode Amplifier (VTA)
The VTA Device
Light Bulbs OUTPUT
OUTPUT WAVEFORM
Ampmeter GRID INPUT
VOLTAGE GRID INPUT
AUDIO OSCILLATOR

CONSTRUCTION OF FLOYD SWEET'S VTA

by

Michael Watson

Abstract

Information is given in this paper to assist experimenters towards reproducing Floyd Sweet's VTA. A brief description is also given of an earlier VTA which was the subject of a video presentation. Some ideas are discussed with regard to how the VTA works and the possibility of a universal source of power in space.

Introduction

Recently Floyd 'Sparky' Sweet has decided to release information on his Free Energy device known as the Vacuum Triode Amplifier (VTA). This device does not use a physical vacuum and is very loosely a triode. The VTA is perhaps closer to the Transductor or Magnetic Amplifier which was used extensively up to the fifties. A better name might be Space Energy Transductor. However since the device is universally known as the VTA I will use this name here.

This Paper contains information on the construction of a VTA for anyone who wishes to put in the time and has the necessary facilities.

I must make it clear that this is cannot be a "How to make a VTA cook book", since at its present stage of development hardly any of the parameters are quantified sufficiently to ensure that it will work even if the instructions were carried out to the letter. Whoever undertakes to build this device, must be prepared for a considerable amount of experimentation. Additionally, most of the apparatus used to activate or condition the VTA magnet or magnets has to be hand built.

Finally, I must warn anybody building the VTA, that the charge held in the conditioning capacitors is dangerous. A shock would almost definitely be lethal. Also the VTA works on principles which are not understood. In operation it is able to output dangerously high levels of power. None of the effects of tapping the source of this power, whatever it is, are known. Neither can the VTA be considered as an

invention ripe and ready for manufacture. Much work still needs to be done and the outcome is by no means certain.

In my opinion the inventor of the VTA Floyd Sweet has made a scientific discovery of the greatest importance. The VTA is just one of a myriad possible applications that a proper understanding of the phenomenon could bring. As an indication of the peculiar nature of the VTA, the inventor found that under certain circumstances the device would lose weight. If this can be verified it points to some profound interaction taking place, such as for example the actual conversion of electromagnetism to inertial forces which seems to be the implication of a number of 5 dimensional theories (1).

Construction of a VTA

The VTA consists of a flat Type 8 Barium Ferrite permanent magnet with coils wound on all three axes . The magnet has the dimensions 10 cm x 15 cm x 2.5 cm thick (6x4x1inches thick) Before the VTA can generate power the magnet has to be 'conditioned'. Conditioning consists of the application of a high energy impulse from a bank of capacitors (510 Joules) to the coils surrounding the magnet. Simultaneously a small 60/50 Hz current is applied to another coil. Once conditioning is completed the capacitors are no longer needed. The VTA then only requires a few milliwatts of input excitation at 60/50 Hz to the input coil to cause the output coil to give up to about 1.5 KW at 60/50 Hz. The excitation can be derived from the output coil, i.e. the loop is closed.

Initially, the magnet is fully magnetised. The coil wound around the outer perimeter is called the A coil and is wound first. (See fig 2.) Each turn has a length of 6+4+6+4=20 inches plus winding former. The next coil to be wound, the B coil, is across the 4" faces so that each turn has a length of 4+1+4+1=10"plus winding former. The final coil is the C coil wound along the 6" face and has a length of 6+1+6+1=14" plus extra for the winding former. The small signal excitation, or so called grid coil is coil A. Output is taken from coil B. Coil C is not used in power generation but is used in conditioning and for the production of anti-gravity effects. The B and C coils have between about 200 to 500 turns of 20 AWG (1 mm) and the A coil about 600 Turns of 28 AWG (0.3 mm) wire. It is most important to get the coil resistance for the B and C coils as close as possible. After the L/R time the coil resistance determines the current through the coils. The Amp/Turns are clearly less for the C coil, due to the larger turn length of the C coil, but the magnetic path length is also less being along the four inch axis. As a guide an experimental B coil of mine wound with 23 AWG (0.63 mm) had a resistance of 4.95 Ohms and inductance of 1.735 mH. The perimeter of the coil was 13.93 inches. The C coil also wound with 23 AWG had a resistance of 5.05 Ohms and an inductance of 1.78 mH. The perimeter was 19 inches. The A coil has a resistance of 70 Ohms and 63 mH inductance.

Conditioning of the present single magnet model is done as follows. (Fig 1).

The A winding is powered with a small current of about 1 Amp at the frequency the final working frequency of the VTA. In Europe this is 50 Hz. This frequency is remembered by the magnet, and it becomes the oscillation frequency of the VTA when it is fully conditioned. Strange though it may seem, any input frequency will be remembered. Thus if the VTA is required to work at 400 Hz then this is the frequency applied to the A coil during conditioning.

A number of single impulses are applied to the B and C coils connected in parallel. After each pulse the sense of the impulse current should be reversed. Also the magnet should be turned upside down. The aim is to produce an area on the face of the magnet in which the flux is as uniform as possible. The final flux density is probably well below the remanence level of about 3900 gauss, possibly as low as 30 gauss. Around the central area on the face of the magnet is an annular ring of opposite polarity which extends to the edge of the magnet. The width of annular ring should be minimise since this does not contribute to the working of the device. The demagnetising impulse amp/turns during conditioning are about 4,000 A/T/inch, but this depends on the exact composition of the ferrite, and the demagnetising characteristic.

As a result of applying these impulses, the magnet may be said to become "dazed" whereby for a short time it becomes possible to charge the magnet from an unknown energy field which is available in the earth's atmosphere (and presumably in outer space). This energy, which the inventor regards as a negative energy field, can be attracted by a positively charged aerial (+450 V). Various means can be used to direct the negative energy into the magnet. A TV picture tube has been used as a sort of simple readily available particle accelerator running at its usual 28 kv, but this may or may not be the best way. The tube deflection coils, and power supplies are all that is needed. The rest is of the TV is discarded.

There are various ways of pulsing the magnet during conditioning. It is essential that the impulse be triggered at the peak of the 50/60 Hz input on the A coil. I use a simple electronic circuit consisting of an operational integrator to phase shift the 50/60Hz sine wave by 90 degrees. This is passed to a comparator and then to a D type bistable to synchronise the manual switch closure with the comparator output The other half of the bistable is used to de-bounce the manually operated switch. The capacitors are discharged by means of a thyristor through the B and C coils. Many impulse are needed with flux density measurement between each impulse. The controlled demagnetisation is important but is very dependent on the magnet material, so has to be determined by experiment. The process can easily take an hour or more.

The Magnet Material

The magnet material, apparently, must be Barium ferrite. Strontium ferrite is not suitable. One reason is that the demagnetising curve is totally different. (fig. 3) The amp/turn/metre is ten times greater for type 8 Strontium ferrite and the Knee is close to the B = 0 axis whereas the for Barium the Knee is at about 0.2 Wb M^2 (2000 Gauss). However, type 5 strontium ferrite might possibly be suitable. Externally, the Barium ferrite magnet can be made to follow the recoil line giving a tiny 30 gauss of remanent flux, but close examination shows that close to the surface there are groups of poles of small dimensions that have not followed the recoil line. The flux distribution close to the magnet is very complicated.

After conditioning the magnet often displays a layer like distribution of poles through the thickness similar to plywood.

An earlier devices shown in the famous 1987 video had two conditioned magnets in attraction mode. The coils were located between the magnets and at right angles to the flux between the magnets. Two sets of coils were used. The excitation coil was wound on the outside of the pair and the inside coil was the output. The output coil was bifilar wound and hence non inductive. A small drive signal was applied to the excitation coil and the several hundred watts of output power was taken from the inner bifilar coil. Of course, due to the bifilar winding the load current produced no reaction flux whatever, but how and why the flux linkage produce an output remains a mystery. Hooper's motional field (1) has been suggested as a possible explanation by the inventor.

Experimental Notes

The conditioning circuit impulses the magnet with a maximum of about 800 joules although only a little over 500 joules of energy is needed to treat a magnet of about 390 cm^3 volume. If the conditioning process fails for any reason, the magnet must be re-magnetised to saturation, and there should be sufficient energy and amp/turns available from a re-magnetising jig to do this.

After application of several conditioning impulses, the average surface magnetic flux density is reduced to about 30 Gauss. As far as the external flux is concerned the magnet is apparently almost demagnetised. The total flux is about 3900 Maxwell over the effective surface of the magnet.. However, anisotropic Ceramic magnets do not demagnetise in a simple manner. The surface of the magnet contains many apparently random opposite polar areas a few tenths of a millimetre across. Overall one polarity dominates over one surface of the magnet by 30 Gauss and the opposite pole over the other surface, so the external flux is not quite zero. Within these self cancelling areas the predominance of one polarity over the other is dependent on clusters of magnetic domains which are balanced in unstable

equilibrium, owing to these groups being well out of alignment with the axis of the ferrite material imposed during manufacture.

A small field applied along the A axis is apparently enough to greatly disturb the balance of domain polarities causing the field to rotate +/- 30 gauss from its mean level. This field fluctuation though small, over the whole magnet area amounts to +/- 3900 Gauss. It is this flux change that generates the output current. The pick up coil axis is along the 6 inch axis of the magnet, that is the B coil. Since the output B coil is at right angles to the A or perimeter coil, there is almost no inductive coupling between them. Motion of the domain groups within the magnet furnish the coupling. The standard transformer equation can be used to approximately calculate the turns for a required output voltage. It is because the flux density is so low that a large area of magnetic material is needed, otherwise the turns per volt becomes excessive.

The small input to the A coil is greatly amplified by flux changes in the domain groups. One would expect a Lenz type reaction field to be induces in the A coil but this does not appear to be the case., this may be due to the appearance of negative permeability which will be discussed shortly. The output is a good sine wave and the conditioned magnet behaves as a high Q resonant circuit. Because all the losses are compensated by the unknown energy source the Q would be infinite if it were not for the load and various non-linearities. The VTA is not self starting. An impulse, or small input signal is needed to trigger the device into operation, suggesting a certain threshold has to be overcome before self excitation can occur.

In operation it seems that the flux oscillates along the long axis of the magnet, the axis of the B coil, yet calculation of output voltage based upon the total flux on the 6x4 inch face seems to be of the right order. The simplest explanation is that the domain groups are in gyro rotation or are propagating spin waves. Aspden (6) has pointed out that ferrites often show negative permeabilities at high frequencies.(7) Perhaps the relatively heavy barium atom plays some special role here. Another possibility is the formation of mobile magnetic bubbles. Magnetic bubbles have a different polarity inside with respect to the outside, and are known to be very mobile.(3)

One of the contentious issue is the requirement for a modified TV receiver during conditioning (It is not used after conditioning is completed). Experimenters who have heard about this doubt if it has any effect. The inventor of the VTA did use such a system. However it is not known whether some other method would work better. Although the magnetic field from the ferrite is small nevertheless it penetrates the glass tube face and the electron beam interacts with it when the magnet is placed up against the face of the tube.. The original idea was based on the belief that the space energy field induced in the aerial is a scalar wave. The positively charged aerial couples into the scalar wave field. The requirement for a positive charge is based on the idea that the positive electric field is an exchange with the zero point

energy field of negative time reversed photons while the negative electric field is associated with an exchange of positive time forward photons. The negative photons absorbed by the magnet are responsible for the appearance the free energy in the VTA .

Another possibility is that the strange memory effect where the magnet remembers a frequency, operates to store the VHF frequency coming in from space via the aerial and TV tube. The magnet is then capable of oscillating internally at VHF frequencies. As previously mentioned, the permeability of soft ferrites becomes complex and even negative at high frequencies (7). Hard ferrites may behave similarly if demagnetised in the way described. The 50/60 Hz would be a modulation of a much higher frequency. Despite the fact that the relative permeability of hard ferrites is close to one, they do increase the pick up of stray RF even in the VHF range.

Some VTA characteristics

The VTA apparently runs about 10 degrees below room temperature. The VTA output coil resistance is about 5 ohms. The output power is 1.5 Kw at 115 V requires 13 Amp rms. The power dissipated in the output coil would be 5 x 169 = 845 Watts! The coil would cook after a few minutes running. Evidently the VTA pumps its own heat, and if there is insufficient thermal energy from i^2R sources the energy is drawn from the environmental heat. This is of course thermodynamically impossible unless a source of negative entropy is injected into the system. It is well known that living systems can be regarded as concentrators of negative entropy. The conventional view is that this is done at the expense of an overall increase in entropy in the environment. An increase of negative entropy signifies an increase in order and it amounts to pumping energy uphill from an unavailable relatively random state into a more highly structure form.

The molecular alignment of domains in a magnet is obviously more ordered than the random alignment of domains in the un-magnetised state. In a permanent magnet the material tends to maintain its magnetised condition and it is this tendency to oppose disordering that is proposed as the source of negative entropy in the VTA system. In the case of the VTA the cyclic ordering-disordering generate the flux changes which produce the output power. This spin couplings which produce the magnetic structures within the domains in a magnet are conventionally regarded as passive and that attempts to exploit these couplings to do work would eventually break the spin couplings. However it is worth pointing out that the flux density within the crystallites is enormous, probably a hundred thousand times greater than the field of the strongest magnet. Nevertheless, it seems the magnet must be coupling into an external source of negative entropy which constantly re-orders the magnetic domains.

General Comments

The output current from the VTA does not cause heating of the wires in the expected manner. The energy produced seems to be a "cold" in the sense that the resistive heating of the wires connected to the load seems very small for the current. However it seams to be capable of heating the filament of an electric lamp. Whether the effect is real remains to be seen.

At least four free energy devices appeared to work based on the idea of a space energy external to matter. One were Hans Coler's Magnetsapparat and Stromerzeuger (3) and the second was the Hendershott machine (5) Hendershott thought that his machine received its energy from the magnetic field of the earth. Suppose that there is something in the negative photon idea, then perhaps the magnetic field of the earth is a negative magnetic field in the sense referred to above. One of the curious aspects of the possible negative magnetic or electric fields is that these fields only display their negativity under specific conditions which are totally at odds with the requirements of modern technology and electromagnetic theory. Then there was the Thomas Moray space energy receiver. Finally, the Testatika. One might speculate that it is the electrostatic equivalent of the VTA.

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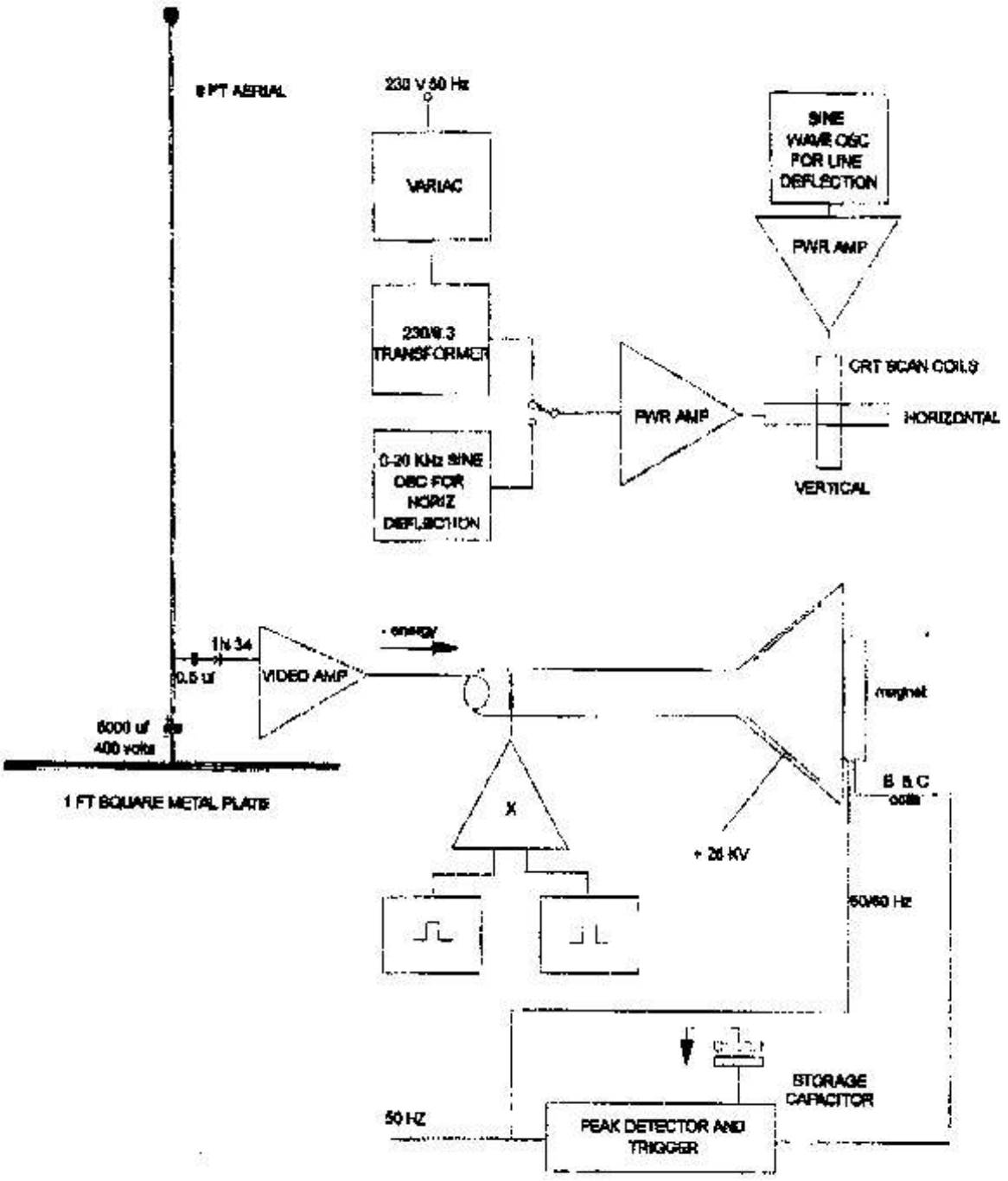

FIGURE 1 THE VTA CONDITIONING SYSTEM

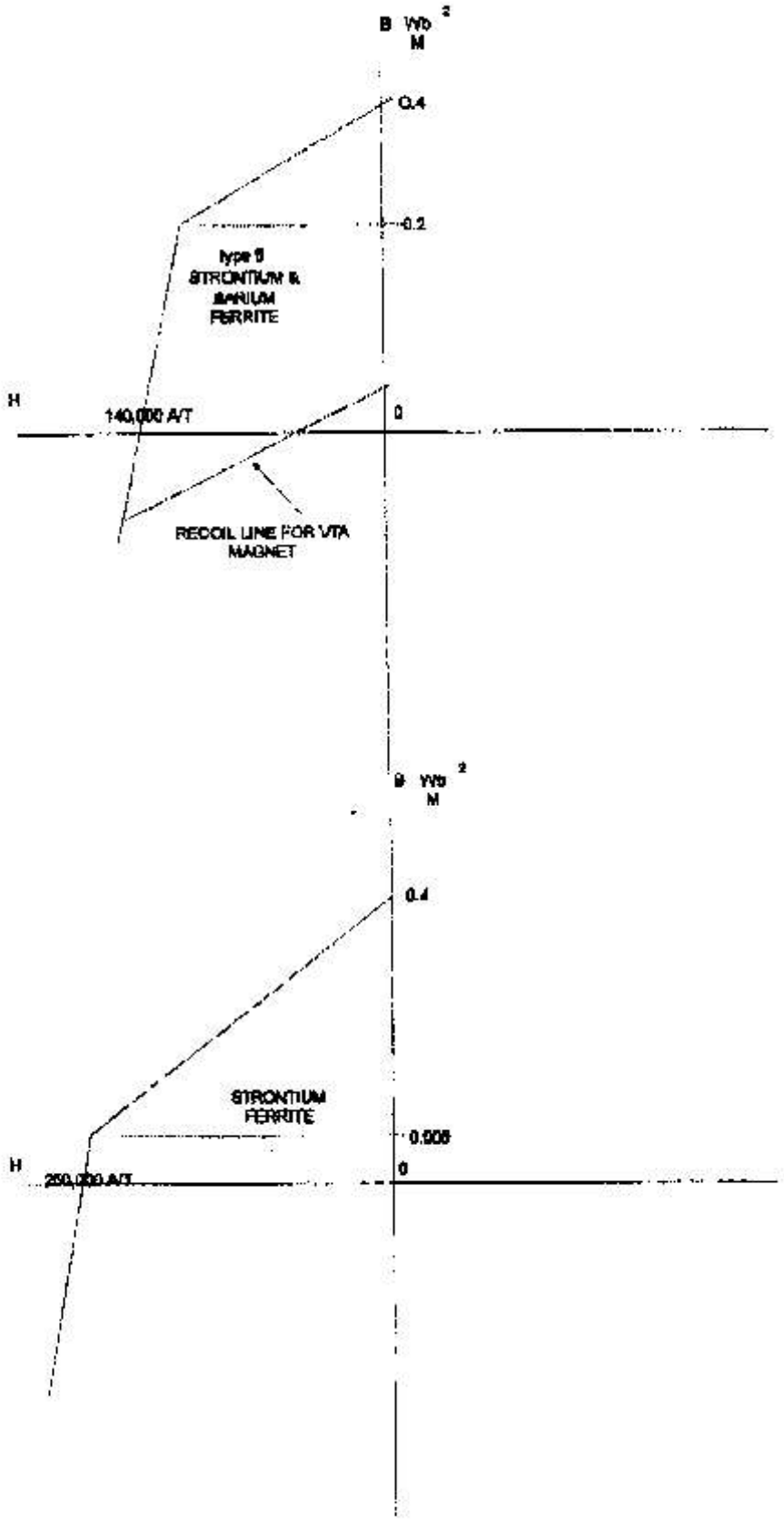

FIGURE 3 DEMAGNETISATION CURVES FOR STRONTIUM AND BARIUM FERRITE

Lattice Twisting

Another method that might cohere the ZPE is to induce a ratcheting, semi-vortical motion of nuclei by abruptly twisting a crystalline lattice. Lattice twisting can occur in ferromagnetic materials when subject to alternating magnetic fields. As the magnetic domains shift, they can launch acoustical spinor waves (Cieplak, 1980). An abrupt lattice twist can occur if the magnetic material is driven to hysteresis saturation, and then pulsed oppositely. The saturation state elastically stresses the lattice, and the reverse pulse triggers the lattice to snap back. Aspden (1990) has identified hysteresis saturation as a significant state for generating energetic anomalies with magnetic materials. The nuclei motion from the lattice twist can launch the vacuum energy vortex which manifests as an excess magnetic pulse. This type of activity could be occurring in the stators of Adam's (1993) pulsed magnetic motor, an invention claimed to produce excessive power.

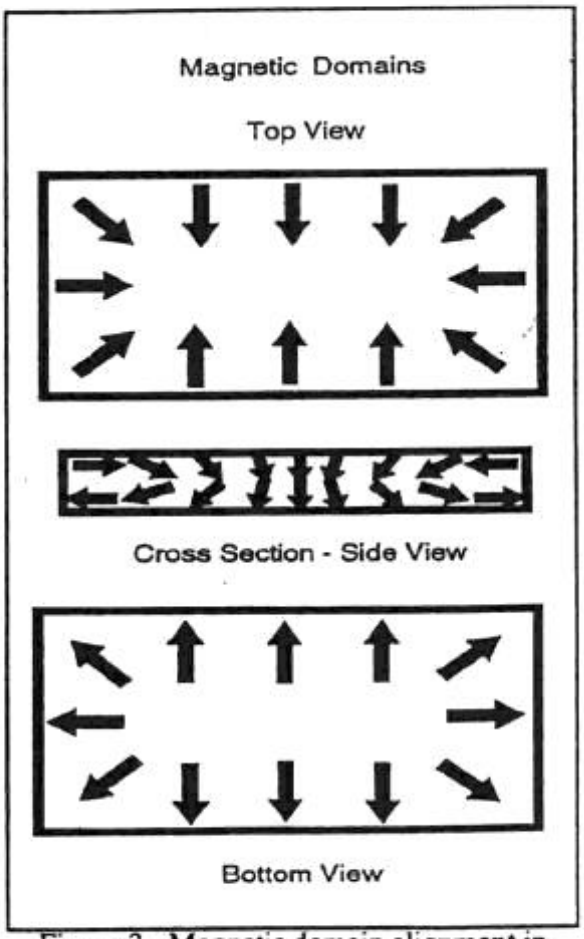

Figure 3. Magnetic domain alignment in barium ferrite after conditioning.

Sweet (1991) also appears to utilize lattice twisting in the conditioned barium ferrite magnets of his solid state energy invention known as the "vacuum triode amplifier" (VTA). Normally barium ferrite is used for permanent magnets, and its domains do not readily shift. Instead, Sweet cracks and loosens the lattice itself with the conditioning process. The barium ferrite block (6x4x1 inches) should be sintered by the manufacturer such that the ceramic is not overly hard. The conditioning is similar to how manufacturers make permanent magnets: An a.c. current is impressed on a coil surrounding the material to erase any residual magnetization.

Then a large pulse from a capacitor bank (a typical manufacturer uses 100 microfarads at 15KV) is fired through the coil to align the domains into a permanent magnet. Sweet's conditioning coil surrounds the (6x4) perimeter of the barium ferrite block and consists of 600 turns of No. 28 wire. He drives it at 60 Hz with a few amps and then switches a large pulse from a 6500 microfarad capacitor at 450 volts (values reported by Watson, 1994) through the coil, timed at the peak of the 60 Hz sine wave. Unless the ceramic is loosely sintered, it is unlikely one firing will crack the lattice. The barium ferrite block should then be turned over (or the coil polarity reversed) and the process repeated such that the domains are driven to the opposite polarity from the next capacitor pulse. The conditioning process should be repeated over and over, altering the polarity each time. The process is analogous to cold working a strip of metal by bending it back and forth until it breaks. The lattice will form micro cracks and loosen such that the magnetic domains appear to readily oscillate when excited by a weak a.c. magnetic field. It is really not the magnetic domains that are shifting; it would be more accurate to describe the cracked portions as acoustical domains since it is the lattice grains that are shifting. Thus in a straight forward manner Sweet has created a twistable solid state lattice that exhibits an acoustical resonance at the conditioning frequency (60 Hz).

Within the micro cracks of the conditioned barium ferrite apparently occurs the phenomenon that coheres the ZPE. Perhaps the shifting lattice's grains induce fractoemission in the boundaries between them. At the crack boundaries nuclei motion could be triggering a coherence in the ZPE which maintains the fractoemission. If grains twisting against each other induce fractoemission within the interior of the conditioned barium ferrite, a coherent plasma would be embedded within a solid, and this plasma could to be directly coupled to the zero-point energy. The embedded plasma is controlled by the action of the twisting domains. The plasma in the boundary between two oppositely twisting grains would be subject to dual counter-rotating vortical stimulation. The conditioned barium ferrite has the magnetic domains on the top surface aligned oppositely to those on the bottom surface, especially near the edge (Figure 3). The domain alignment follows the flux lines of the conditioning coil. Near the edges of the top and bottom faces, the domains are aligned nearly flat. (Sweet demonstrates this by placing a thin steel strip edgewise on the ceramic face. In the center it stands vertically; it tilts more horizontally as it is placed closer to the edge.) When excited by an a.c. magnetic field from the side, the top and bottom domains will twist in opposite directions as they oscillate. In the micro cracks between these oppositely twisting domains, pair production of fractoemission plasmoids exhibiting opposite helicity might occur. QED requires that vortical coherent forms arising from the ZPE occur in pairs to conserve angular momentum. If such plasmoid pairs are generated throughout the interior of the ceramic, they could integrate into two macroscopic, counter-rotating, displacement current vortices.

Dual vortex action is required in order to induce a current on a series wound, bifilar coil (i.e. the windings are shorted on one end). Sweet places the bifilar coil on the face of the conditioned barium ferrite (which is driven by an a.c. magnetic field from two separate, in phase, standard wound, "excitor" coils directed at the 4 inch sides). In a series wound bifilar coil, current must flow up one winding while it simultaneously flows down the other. No form of standard magnetic induction could induce this type of current flow. Sweet is

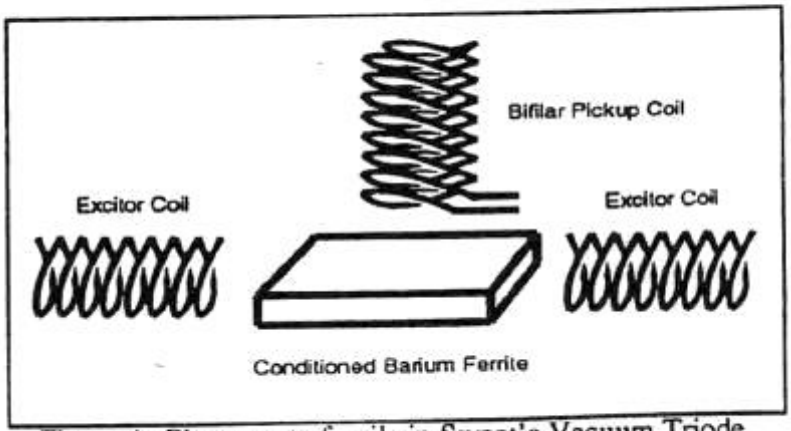

Figure 4. Placement of coils in Sweet's Vacuum Triode Amplifier.

able to tap appreciable electric power (500 watts) from the bifilar coil, and in addition, the current from this coil is "cold", i.e. thin wires (No. 30) can conduct the power without being heated. The current does not appear to be standard electron conduction; instead the coil seems to be guiding vacuum energy displacement currents (King, 1984). Other inventors have observed this cold current effect; e.g. Moray (1978) used No. 30 wire in his 50 kilowatt radiant energy device, Bedini observed it from his "gravity field generator" (Bearden, Herold, Mueller, 1985), and Panici observed it in his battery pulsing experiments (King, 1993). To make the VTA free running, Sweet taps off some of the output power from the bifilar coil and feeds it back to the excitor coils. If too much power is fed back, it overdrives the lattice twisting, and the ceramic pulverizes. The counter rotating vortices appear to significantly cohere the ZPE.

There is another indication that the ZPE is the energy source for the VTA. When running, it loses weight. Wheeler's (1962) geometrodynamics shows there is an intimate connection between the ZPE, gravity and curving the space-time metric. Likewise, Puthoff (1989) suggests that the basis of gravity is the ZPE itself. When driven to output a kilowatt, the VTA has exhibited a weight change on the order of a pound. The only energy great enough to locally alter gravity would apparently be the ZPE.

The counter rotating vortex hypothesis may also explain another well witnessed, free running, energy machine: the Swiss ML Converter (Matthey, 1985). Two large, counter rotating, acrylic disks (similar to a Whimshurst machine) induce a colorful, swirling plasma between them. This plasma would then be the analog to the fractoemission plasma between the lattice domains in the VTA ceramic. The friction action of the spinning disks create the counter rotating plasma which induces the dual vortex, ZPE displacement currents. The principle of using counter rotating plasmas might form the basis for many future ZPE machines.

The counter rotating vortex idea may elucidate how to stimulate the core material of a caduceus coil in order to output excess energy. The caduceus coil consists of two perfectly symmetric, insulated wire coils of opposite helicity wound on a cylinder. The coil wires must crisscross each other in order to be identically symmetrical. Smith wound his coils on ferrite cores (Burridge, 1979) and Van Tassel wound his on quartz (Dollard, 1988). Bearden (1986) and King (1989) have suggested pulsing these coils to create abruptly bucking electromagnetic fields that would result in a scalar ZPE coherence. On the other hand, to receive energy from the coil would require inducing the appropriate lattice twisting on the core material. For ferrites, a conditioning process much like Sweet uses for his barium ferrite would be appropriate. The domains would have to align along the diameter of the cylinder (right angles to the cylinder's axis) with alternate directions in regions at different heights along the cylinder. The domains would shift in response to excitor coils at right angles to the caduceus coil. If the ferrite lattice has cracks in between the alternate domain regions, then lattice twisting could induce the fractoemission plasma and the behavior of the caduceus coil would mimic the VTA. (It would effectively be the same as the VTA except for the shape of the barium ferrite).

Lattice twisting could also be induced on high permittivity dielectrics (barium titanate, lead zirconate, etc.) The polarization vector of the dielectric would follow the high voltage excitation from electrodes placed on the circumference of the cylinder (Figure 5). At a different position along the cylinder another set of electrodes would drive the polarization vector opposite to the previous layer in order to induce the counter twist to

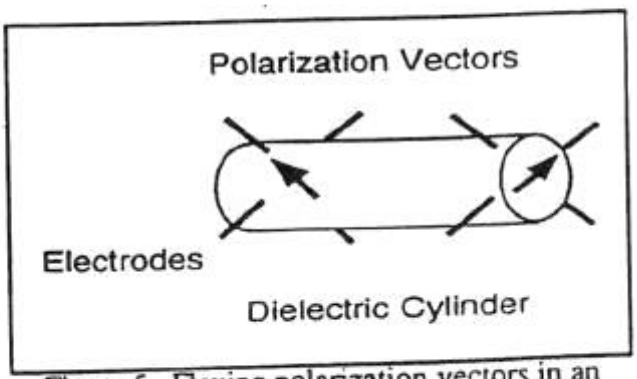

Figure 5. Flexing polarization vectors in an ultrasonic transducer creates spinor waves.

the lattice. Cracks between the lattice regions would offer opportunities for fractoemission. An electret whose polarization vectors are permanently aligned would be the analog to permanent magnetic material and would allow maximal lattice twisting. In ultrasonic transducer materials, the stimulation could induce counter rotating, acoustical spinor waves (King, 1993). If instead of a cylinder, a toroid is used, the spinor waves can circulate and close into standing waves. If concomitant ZPE displacement currents align with these counter rotating standing waves, then the positive feedback of such coherence might induce a sufficiently great ZPE interaction to produce a large gravitational effect.

Summary

The observed anomalies associated with ion motion in plasmas, liquids or solids along with the zero-point energy theories manifest a common theme that may be summarized into four principles:

1) The abrupt, synchronous motion of nuclei or ions cohere the ZPE.

2) Vortex motion of the ions produce even a greater effect, and there might be an optimal vortex shape around which a ZPE coherence would naturally form.

3) Higher order rotations, i.e. precession, further augment the ZPE interaction.

4) A large macroscopic ZPE coherence would involve pairs of counter-rotating vortical forms since this conserves angular momentum.

Today, two free running energy inventions appear to utilize these principles and consequently produce a large energy output. The Swiss ML converter clearly has two counter-rotating plasma vortices since the corona is readily observed between the oppositely rotating acrylic disks. Unfortunately, there is not enough technical information available to allow widespread replication. On the basis of simplicity, Sweet may have achieved the most elegant energy device ever invented, yet its behavior is complex since it appears to contain multiple pairs of microscopic, counter-rotating, fractoemission plasmoids within a single ceramic block. If Sweet's invention could be replicated by the scientific community, our science and technology would enter a new era.