

Similarity Institute

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How the Equivalence Engine Works

Time Energy: In the conception of an idea such as a free energy machine the idea appears first as an intuition or dream emerging as a result of incredible tension. The tension is resolved first as an intuition or dream of a machine (the language of the experimenter) which is then intuited or later explained on the basis of paradigms which form the structure of the 'language', i.e. physics. What we get is always in our genes, we just figure out how to say it. The tracks of man. We make up our own language as we go along.

A good way of figuring out or understanding where the energy comes from is to consider the Universe as a living form with both temporal and spatial extension. We can 'see' the spatial extension all around us but we only sense the time extension in the form of memory or vibrations around an object (the aura).

Although the physical body is anchored to the present the mind travels in time and space. The now consists of the point where future time intercepts past existence. This point is where an energy transfer takes place from the time energy of space to the real time of our past behavior or history. History is dead time. It exists in the mind of the rememberer until it dies and disappears. Records can be made, but they eventually disappear too. So the mind of man is finite and consists of

all that he remembers or has records of. What I'm getting at is man and his world sits still in the present and the time-energy flowing through him energizes his present. So man and the world of man are like a projection slide through which the time energy plays and projects our existence out on the tapestry of created 'our time'. So man starts out as a pattern, illuminated by the time-energy, he plays out his life in the emerging scroll of history. We do not go into the future. The so-called future comes into existence at the intersection of the time-energy flow with the matter (man, animals, the world) which is present. So the species has a total existence of what it remembers, together with the potentiality of what is present being energized by the time-energy flow through it.

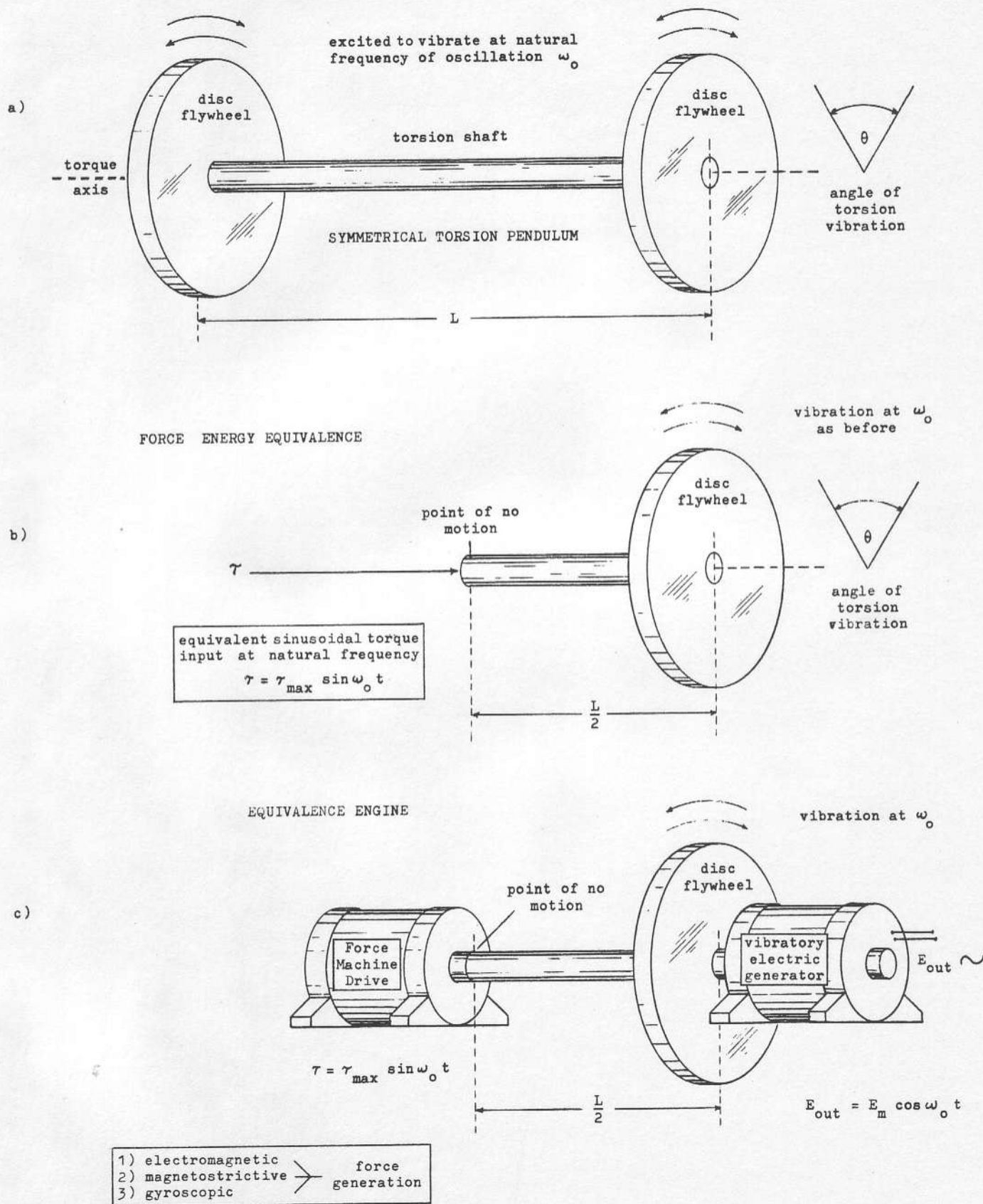
We can say that things 'age' because of this time energy flow. The miracle of life is that it has converted 'age' into a cycle through the mechanism of the seed. In this context, 'immortality' consists of remembering your past, up to the limit of the species itself -- as manifested in any given region of space. We are all different parts in the body of the Universe, we just didn't know we were.

This blood plasma, this time energy flowing through all of us and everything, this is the fundamental energy of the Universe which animates all things. If everything which moves, and age is a form of motion, is animated by the same time-energy; all lesser forms of energy, i.e. electricity, heat and pressure, are derived from that basic flow. It should be simple for us to tap this energy for the key is time is motion.

The Equivalence Engine: The equivalence engine consists of a torsion pendulum excited at the nodal point. Power is taken from the end in motion. With reference to figure (1a) we see a system which is a combination

Figure (1)

EVOLUTION OF THE EQUIVALENCE ENGINE



of two metal discs separated and connected by an elastic member, a rod joining the discs by their centers affixed perpendicular to the surface of the disc ends. This "bar-bell" is caused to oscillate, is set in its natural mode of torsional oscillation by twisting one one of the combination in relation to the other and then releasing the pair to freely oscillate in the manner shown at the natural frequency of the system.

The natural frequency of such a system is related to a resonance usually described in terms of an energy interchange occurring between energy stored in the twisting of the rod member, $\frac{1}{2}k\theta^2$, and the motional energy of rotation stored in the contra-oscillating disc flywheels at either end of the twisting rod. Actually if one intends to find the frequency of oscillation of such a system in the fundamental torsional mode he finds that he is stumped for classical mechanics gives no answer to such a question.

Actually the behavior of such a system is outside the bounds of presently understood paradigms. For example if we have such a system as given in figure (1a) and it has been given a twist and it is oscillating in its fundamental mode with the disc flywheel at either end of the twisting torsion shaft moving in opposite sense of rotation simultaneously and sinusoidally back and forth; we can see if we cut the rod in two, figure (1b), we can excite the same sort of torsional oscillation of figure (1a) by simply providing a source of sinusoidal torque excitation at the center of the rod which duplicated the alternating torque situation which existed when the rod was whole, (i.e. the two parts were put together). The equivalence engine results when the end of the shaft (and disc) still in motion does not know the missing one-half of the oscillating system has been replaced by an equivalent oscillating torque boundary constraint.

Force-Energy: The Force-Energy Equivalence Principle replaces the Work-Energy paradigm to explain the operation of the system. Clearly, the end of the torsion pendulum situation shown in figure (1b) which is in motion undisturbed by the replacement of the missing half of the system by a sinusoidal torque generator of the appropriate frequency to excite the rod-disc combination at its natural frequency.

In the same wise if there had been power being transmitted through the system, i.e. a combination of d.c. motors, one used as a generator and excited at the resonant frequency of the system by a.c. -- if the motor driving the disc at one end of such a system were moved to the center and operated in a blocked armature mode so as to produce a sinusoidal torque only, no motion of the shaft, -- then we would have a situation where work out-put was extracted; was extracted from the generator end for no mechanical work input ($\mathcal{R}de$) at the driven end. The situation shown at figure (1c) is the resultant equivalence engine.

Practical Considerations: Experiments performed by this author have investigated three modes of sinusoidal torque generation without motion:

- a) direct current electric motor in blocked armature mode.
- b) torsional magnetostriction in nickel rods.
- c) sinusoidal torque generation from constrained gyroscopic precession.

Apparatus for the generation of force without motion I call Force Machines, i.e. electromagnetic, magnetostrictive, or gyroscopic. It is clear, that aside from mechanical losses, such forces are generated without mechanical work. For this reason, optimization of these drive systems requires the minimization of electrical and mechanical losses incurred in production of the force out-put of any given drive engine. In so far as the

output being extracted from the generator (motional) end of the machine, no work is required.

If we think about it, the sinusoidal torque generator, force machine, which is supplying the alternating torque boundary condition at the input end of the rod, -- is doing just that, providing a sinusoidal torque boundary condition at the precise natural resonant frequency of the rod disc-flywheel-generator combination.

Tests made with a combination of two high-performance low inertia motors and a rod disc combination resonating at 60 c.p.s. reveal a predicted performance of the disappearance of back emf in the drive motor at resonance while at the same time the torsional oscillation of the motional (generator) end remained constant. Under these circumstances the configuration shown (figure 1c) has delivered one milliwatt of free energy power into a one ohm load resistance with 9 watts being consumed in the (d.c.) resistance of the drive motor (force machine).

In terms of the construction of a commercial power generation machine capable of useful output and self energization it is clear to see the performance rests on the reduction of the d.c. resistance of the motor armature and the development of a high-efficiency a.c. generator system around a motion that consists of the alternating torsional motion of an armature through so-many degrees back and forth.

How much power can be extracted from such a machine? When the loading is such that the armature-shaft combination oscillating member is reduced in Q factor from the unloaded value (usually several hundred) to a Q of two. When exactly more than $\frac{1}{2}$ the total stored energy is extracted from the oscillating system per cycle the system will 'die'. This is when the resonance is destroyed and the system does not remember from

one cycle to the next what its natural frequency was. At this point a Q factor of 2 is reached.

At the no load condition the equivalence engine has a phase shift of 90 degrees between the output voltage and the drive current. When the load on the machine is increased the input and output can approach an in phase condition. For this reason it is better to excite the machine from an external oscillator powered by, but not necessarily phase synchronous with the machine output voltage. The "efficiency" of the electromagnetically excited equivalence engine is seen thus to depend on the d.c. resistance of the electromagnetic force-machine drive engine and the normal motional electric generator efficiency for a machine whose armature is constrained to move through a certain angular sector and whose performance is optimized for such a mode and frequency of oscillation of a given resonant system.

Using the magnetostrictive principle, tiny equivalence engines can be used to replace most of the applications of batteries (except to start equivalence engines). The nickel drive rod force machine would have to be fabricated of many small wires to have low electrical losses at the frequency of operation. We have constructed such a machine with an operating frequency of 5kc. Operation was conventional and as expected.

The most powerful form of equivalence engine excitation can be obtained from a precessing gyroscope. Such a force machine drive engine combination is shown as figure (2). The combination of gyroscopes as shown produces an alternating torque in one plane (the plane of the paper), when the torques of the precessing gyroscopes add. The gearing as shown is phased to produce torque cancellation, one gyro by the other, about a line perpendicular to the plane of the paper.

EQUIVALENCE ENGINE

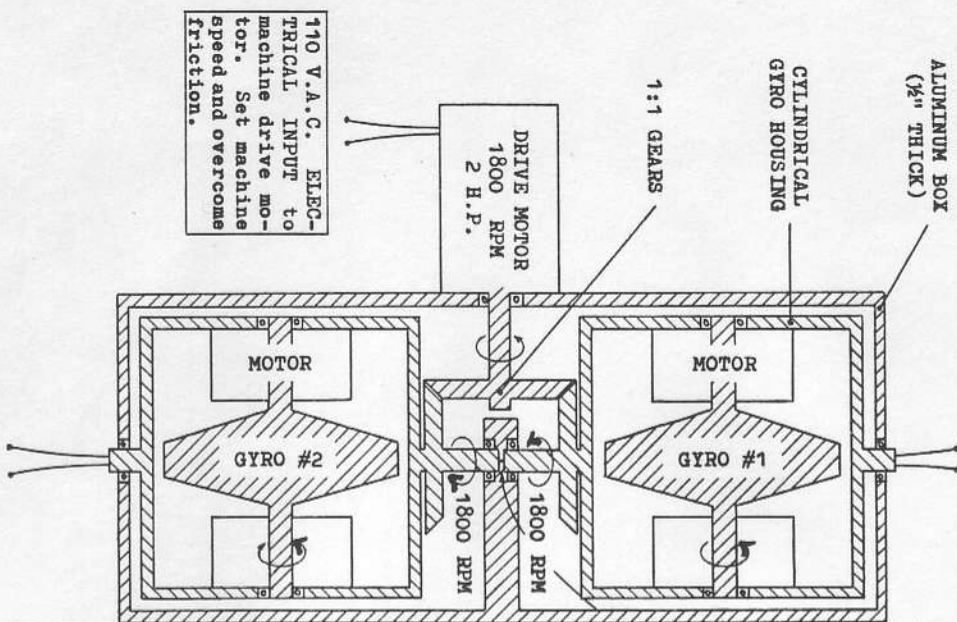
BRUCE E. DEPALMA, KELLERS CHURCH ROAD, BEDMINSTER, PA 18910 USA
APPLICATION OF THE PRINCIPLE OF THE SPACE DRIVE TO THE GENERATION OF ELECTRICAL POWER

FORCE GENERATOR
(FORCE MACHINE)

FORCE — VELOCITY
(RESONANT QUILT)

VELOCITY — ELECTRIC CURRENT
(DYNAMO)

GYRO MOTOR INPUT



Constraint about vertical axis by torque cancellation in frame of machine. (Vertical axis perpendicular to plane of drawing).

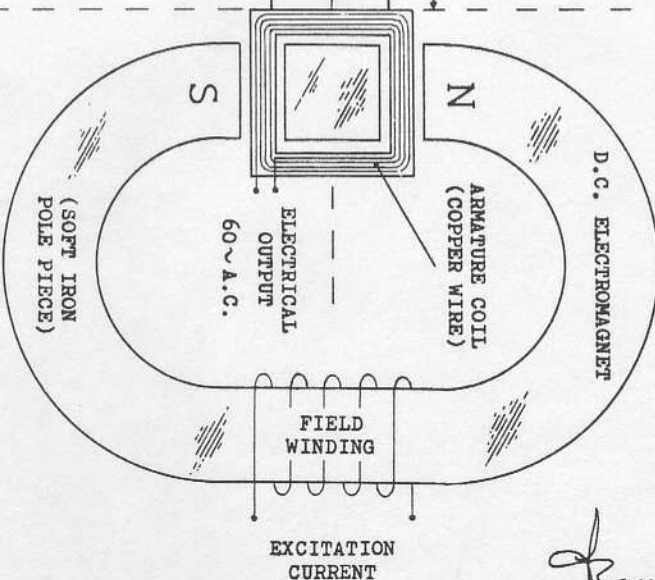
RESONANT QUILT SHAFT
(STEEL)
(LOADED "Q" FACTOR 2-3)

$\lambda \approx 60 \sim$

HORIZONTAL TORQUE AXIS

Torsional vibration of armature coil generates electric current.

When electrical load and torque impulses are balanced the force generator is constrained for motion about the horizontal torque axis. Equal and opposing torque impulses are transmitted by the resonant quilt shaft.



Power output is limited by the structural integrity of the machine. A portion of the electrical output of the dynamo may be used to energize the force generator.

Beak
15 October 1976

The simplest most effective combination of this sort is a single gyro which is precessed about one axis and the alternating torque thus generated is constrained in two axes perpendicular to each other -----, and to the axis of constrained precession -- a rectangular box at the center of a cross. For this, four alternating current generators can be excited with the outputs in a 90 degree phase relation one pair to the other. The only losses incurred in such a machine are frictional in the motion of the precessed driven gyroscope. With the force levels obtainable -- easily up to the ultimate strength of the materials of the flywheel and bearings -- friction, and the heat generated therefrom may be one of the principle design parameters together with the selection of the materials in the practical realization of the machine.

Where Does the Energy Come From: Two of the men who have penetrated most deeply into the understanding of "Cosmic Energy" are Mr. John Bigelow and Mr. J. G. Gallimore, both of Indianapolis, Indiana. John Bigelow calls it "Earth Energy" -- The Entrancing Force with a Thousand Names. Gallimore says: "The energy itself has two polarities which are spiral twined together or may exist separately. These energies may divide into two more which are generally locked into matter." The paradigms of religion and science merge once more with the realization the polarities of the (time) energy are male and female aspects. Since the spatial reality is energized in the now (present) by the time energy flowing into it into the past, the male female aspects of the created world are the animations of the male female aspects of the time energy flowing into them and making them alive. The rest of the world is created from these fundamental polarities.

One can think of these things not simply from the point of symmetry,

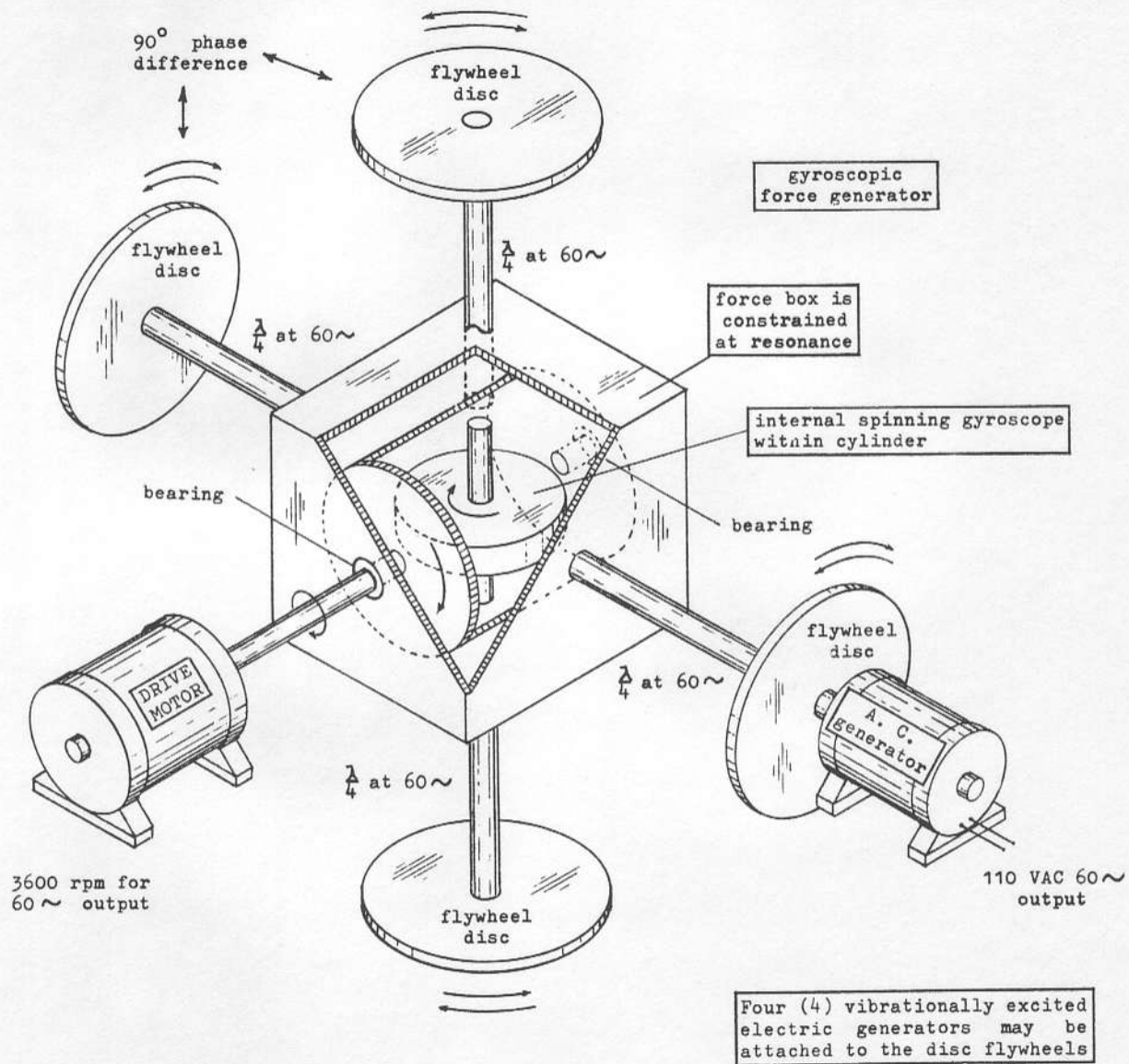
since if male and female were exactly equal and opposite, there could be no issuance or generation from their mutual annihilation. This does not mean that clockwise would be equivalent to anti-clockwise since symmetry is not shown to be a basic principle of the Universe we can observe the symmetrical torsional oscillation of the motional end of an energized equivalence engine. As well, Kozyrev of Russia has observed slight differences in the weight and inertial mass of rotating gyroscopes of identical rest mass tested in the clockwise and anti-clockwise sense of rotation with their rotational axes identically alligned.

The better understanding of the whole situation is obtained (see figure 4). In figure (4) we have what I feel is the most general interpretation of the equivalence engine and its energy output which can be expressed in terms of the language available. We see that operation of a torsion pendulum, an elastic torsion member, to one end of which is attached a flywheel disc. The free end of the torsion member is driven at the frequency of natural resonance of the system by a force engine, a Force Machine whose function is to provide a live constraint in the form of a sinusoidal torque variation exactly cancelling the opposing forces in the torsion member -- a condition which occurs for any level of torque excitation provided at the exact resonant frequency of the system.

Such a combination, excited as shown, can be understood within a paradigm which comprehends the excitation of a system such as shown in figure (4) as the conferrence of a condition of polarity on the oscillating system. The motionless end is the female end and the motional flywheel end of the system is the male end. The condition of excitation of the equivalence engine by sinusoidal torque impulses at the resonant frequency of the system creates a condition where the male aspect of

MOST POWERFUL VERSION OF MECHANICALLY DRIVEN EQUIVALENCE ENGINE

Figure (3)



THE PHILADELPHIA ELECTRIC, equivalence engine with torque drive by driven gyroscopic precession

the time energy flow is drawn to the motional oscillating disc flywheel and the female passive aspect is drawn to the live constraint condition existing at the driven end of the system. The union of the male and female time energy aspects in the body of the machine can result in the generation of large amounts of useful electricity. If we consider the electrochemical battery in the most general terms, electricity results from the union of male female aspects of the polarization arising from the action of an electrolyte joining the male and female elements -- and so on down the line. The greatest activity can be developed out of situations joining the male and female elements as archetypes. The most powerful situation which can be mechanically created is the equivalence engine driven by alternating force impulses created from the driven precession of a single rotating gyroscope which is constrained by the resonant reaction torques arising from driven torsional oscillations of the the flywheel discs oscillating in the four possible directions in planes perpendicular and orthogonal to the driven precession axis. Figure (3), we call this the Philadelphia Electric Machine.

Conclusions: I hope it is not necessary to demonstrate the existence of time-energy by lighting a light bulb from it. As you can see, we already light our light bulbs from it, and, in any case I have already shown I can convert at least a tiny fraction of it into one milliwatt of electricity. The important part is that we can only understand these machines out of paradigms more basic than common science acknowledges. The male female time energy paradigm has been with us from the Ancients. The energy has a thousand names because: (1) it is indescribable, and, (2) everyone who discovers it puts his own name on it. It is entrancing, because everyone who goes after it and finds some of it becomes entranced and intoxicated with (divine) energy. And so we find it again.

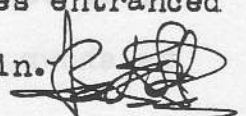


Figure (4): The Shiva-Shakti Engine. In terms of new sources of energy of course everyone is very curious about what the energy is and from where does it come about. Of course Time-Energy is a beautiful paradigm and it relates right back to concepts arising out of our present physics. In the search for more general bases for our thoughts we are ineluctably driven to the most basic understandings developed by man. These are the religious philosophies and they attend to the understanding of the most fundamental and basic forces in the Universe of understanding of man.

In terms of a discussion of the so-called 'free' energy it seems that I have nothing to add to the already profuse body of religious and esoteric dialectic relating to the basic life force energy and source of causes in the universe. However, in order to make the equivalence engine more understandable to someone who thinks in religious basic terms I can use knowledge taken from the Hindu vedanta. In these reasonings the basic life force of the Universe is taken to have male and female aspects the Shiva and Shakti of the Hindu Vedas. The "play" or dance of Shiva and Shakti energizes the created world. In this context, fire, is what we know of the destructive aspect of this relationship. In line with these interpretations it would seem to me that to interpret the equivalence engine in these most general terms would be to see the motion of the torsion pendulum, dancing as shown with a steady sinusoidal note at the natural frequency of the system represents a condition of the creative aspect of the merging of the Shiva and Shakti elements of the life force energy; in so doing providing illumination for the world. In terms of a magical interpretation of Nature, a match provides an invocation of the destructive aspect of the merging of Shiva and Shakti which we know as fire. Conferrence of a condition of torsional vibration on the system as shown, the equivalence engine, results in the establishment of a sit-

uation of polarization of the instrument into male (Shiva) and female (Shakti) elements joined by a twisting rod in torsional oscillation at the natural frequency of combination of the system. Under these circumstances (invocation) the male and female time energy aspects are preferentially drawn to the appropriate respective ends of the system.

When electrical energy is drawn from such a device, excited as shown, the male - female time energy aspects merging in the body of the machine shown provide the reservoir from which the useful output of the machine is drawn. If for instance the twisting torsion shaft holds peak 100 watt-seconds of energy at the maximum of its cycle and the shaft is oscillating at 1000 cycles-per-second (both reasonable and practical figures for a useful machine) then if we withdrew 1 watt per cycle we would have an output of 1000 electrical watts; if we withdrew the maximum amount possible just short of killing the resonance ($Q = 2$), then we would have a maximum of 50 KW possible. These factors are theoretical and assume a generator efficiency of 100% in the conversion of mechanical to electrical power. A practical large vibratory generation system might achieve a generator efficiency of .9 which would make the output of our small machine described above 45 kilowatts electrical.

A machine as powerful as the Shiva-Shakti machine represents the same force as fire in its destructive aspect would be if it were channeled into creative force. In terms of what we get is in our genes I am tempted to make the comparison during the "Space Age" the '60's we were doing the "Twist" and now, the resemblance between the archetypal equivalence engine as shown and certain varieties of naturally occurring psychedelic mushrooms which have become the preoccupation of amateur mycologists the world over, is unmistakable. As the inventor of the equivalence engine I can say that reality is a curious thing. If we think about finding what

is in our genes. Maybe it is possible to see, get some idea of; the intensity of the symbolism which is reality.

Nothing which is far out is very useful. I speak here of the Uranium and the Plutonium merchants who chant their merchandise will do everything for the world. The things which are commonplace or ordinary, there are the elements which will help us, the constructive elements, iron, steel, copper, bronze. Uranium and Plutonium are poisons on every level of existence. There is nothing good about them. So if one need an esoteric reason to avoid radioactivity here is one, the symbolism is obvious. The equivalence engine should replace all the intended activities of the bombmakers and the warmakers, both kinds of anti-social far-out activities which should be eliminated from our society.

References:

"Earth Energy-The Entrancing Force with a Thousand Names," John Bigelow, Health Research, P.O. Box 70, Mokelumne Hill, California 95245, 1977, \$6.

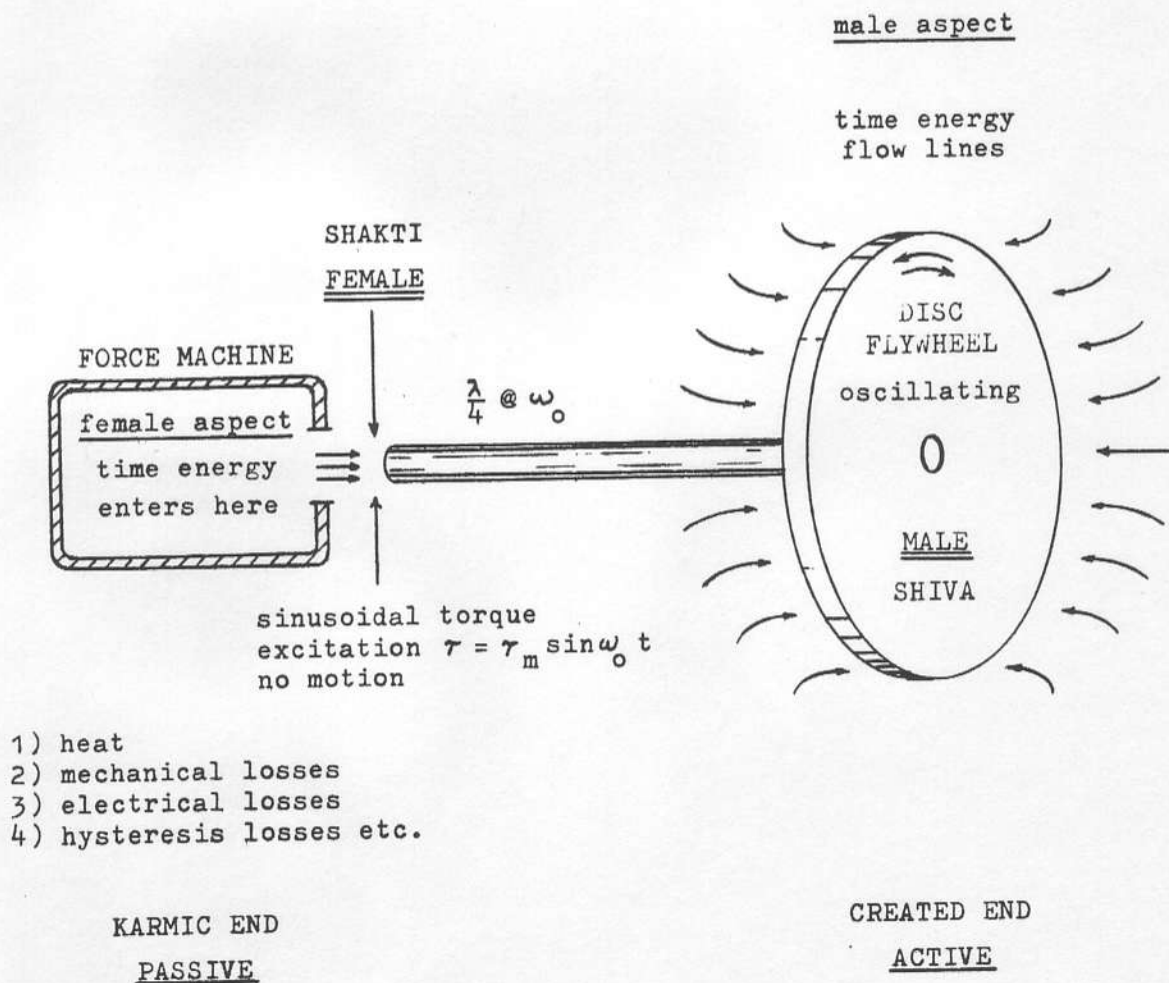
"Volume II - Collected Properties and Writings of J. G. Gallimore," vol. 2 of The Handbook of Unusual Energies, J. G. Gallimore, Health Research, Mokelumne Hill, California 95245, 1977, \$40.

"Understanding the Dropping of the Spinning Ball Experiment," Bruce E. DePalma, Simularity Institute report 3 May 1977, Kellers Church Road, Bedminster, Pennsylvania 18910.

Figure (4)

UNDERSTANDING THE EQUIVALENCE ENGINE
(advanced mechanical concepts)

mechanical polarization through resonance excitation creates male and female motional aspects



The electrical energy which may be generated by such a combination represents the possible issuance from the merging of the male and female energies in the body of the machine.