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Many attempts have been made by man to harness the forces of nature to obtain kinetic energy. There are other types of energy besides sunlight which are constantly bombarding the Earth with waves and particles. These surround the Earth in much the same manner as its atmosphere, in the very space in which the Earth exists. Among these are the gravitational and magnetic fields, but these should not be confused with solar energy and the rays commonly referred to as Cosmic rays. Recent discoveries have substantiated these claims. It is not so many years ago that these sources of energy in the Cosmos were unknown or not generally recognized. I am reminded of a statement made by an examiner of the U. S. Patent Office who said, to quote: "No natural source of electrical wave energy is known to the examiner," and he asked for proof of the existence of such energy. May I ask the question, "What is proof?", when proof is unacceptable. Many of us would treat any degree of proof in the same frame of mind as the man who said, "I am going to listen tonight with an unbiased, open mind, and with no preconceived opinions, but I won't believe a word I hear." It has rightly been said that one can prove almost everything but the truth.

Some of the features of radiation from the Cosmos make them very attractive as a possible kinetic energy source. They represent the highest energy level known among the existing radiation phenomena. They are practically free from seasonal and daily variations in intensity. They are unaffected by overcast and will penetrate the most dense materials such as rocks and metals with ease. They are coming to the earth from all directions and are rather uniformly distributed, being only slightly more intense in the Polar regions than at the Equator. One must not confuse the electrical energy density with the radiation belt which is thinner at the Poles than at the Equator.

Visible radiations have always greatly attracted the curiosity of man. Luminescent wood, phosphorescent meat, illuminating organs of deep sea fish, fireflies and glow-worms are among the well known wonders of nature. Cold light, on the other hand, the invisible radiations of the Cosmos, while they play an important part in our lives, have not, until recently, attracted the serious attention they should have done. Invisible radiations from the sun and the Cosmos play a part of the greatest importance in our lives. In all types of matter, the utilization of this energy is vital in the evolution of matter and the evolution of forces. Can we name any part of our existence where energy from the Cosmos does not play an essential role?

Our interest tonight is directed to the radiations which I have for years given the name of Radiant Energy. These radiations occur over an extended range of frequencies, and each frequency has its independent "beat note." The extremely high energy gamma rays have deep penetrations, while the lower energies

will not pass through the thickness of a fraction of an inch of lead. Alpha and Beta particles have very limited penetration power. Visible light is absorbed by all matter that is not transparent or which has various degrees of opaque characteristics. Radio waves may be completely stopped by a closely woven metallic screen or similar substances, also mountains. All radiations vary greatly from one end of the Energy spectrum to another. I am not trying to tell you anything tonight which you probably do not already know, but I am calling to your attention certain known facts as an introduction to the great energy level of certain forces of the Cosmos and especially to those that are, as Dr. Nikola Tesla said, "kinetic energy," whose existence has only recently been universally brought to our attention. As I previously mentioned, it is not so long ago that the U. S. Patent Office denied the existence of these energies, because no natural source of electrical wave energy was known to the examiner. Such objections are similar to those which have existed from the time man made his first epochal discovery, including that of the finite speed of light.

Tonight I am not going to try to prove anything. In fact, no one can prove anything to those who cannot prove the matter to themselves. I will make certain statements of fact and mention other facts which I and my associates have been able to prove to the satisfaction of ourselves and hundreds of other open-minded thinkers.

There remains the fact that a device has been developed and adequately tested which traps energy from the Cosmos and makes it available in usable kinetic energy. Our intention is to create an interest in this energy which exists throughout space, of which the immortal Dr. Nikola Tesla said, Many decades ago, "Throughout space, there is energy." Is this energy static or kinetic? If static, our hopes are in vain. If kinetic, and this we know it is for certain, then it is a mere question of time until man will succeed in attaching his machinery to the very wheelwork of nature.

Time will not permit me to attempt to cover many of the points of this Radiant Energy discovery. Additional information is given in some detail in the book, "The Sea Of Energy In Which The Earth Floats."

Radiant Energy is a term used by me to designate an energy of the Cosmos based on the Moray concept of the energies of the combined steller spaces. Radiant Energy travels through space with a definite fixed velocity which may or may not be compatible with the theory of the speed of radio waves, visible light, gamma rays, etc.

All radiations exhibit the phenomena of interference. Any form of wave motion can be made to exhibit the phenomena of interference. The beats heard when two tuning forks of the same frequency are struck are an example. If two or more vibrations are reduced to perfect resonance, which some may contend is an impossible feat, very interesting stages of energy are established. Doctor Tesla obtained a very high form of energy frequency resonance in some of his experiments. Resonance is one of the pre-requisites to capture the energies of the Cosmos. To detect or syphon radiant energy, it is necessary that it be transferred into the familiar potential of the kinetic energy of matter. This transformation obeys the laws of the conservation of energy, that is, the number of ergs of radiant energy received from the Universe is equal to the number of ergs of potential or kinetic energy manifested.

No material substance known is totally and wholly transparent to radiant energy. The mechanism of absorption is a matter of importance in the capture of Radiant Energy.

There are at least three ways in which energy may be transferred with the aid of matter; (1) by the flow or movement of definite masses of matter, such as the tides of the sea or the driving rods on a locomotive or the rotation of matter in a magnetic field; (2) by the wave motions in an elastic or resilient media, such as in air or in the plasma; (3) by material projectiles. The wave theory of radiation is based upon the well-known and understood principle of wave motions as stated a moment ago in resilient materials.

These features enable energy transformers using these radiations from the Cosmos as a primary oscillator to operate by resonance and by synchronization with the oscillations of the Universe and with relative independence as to the position of the energy transformer and as to season or day or night. It is evident that such a resonator would show possibilities of efficient operation in moving vehicles within the Earth's atmosphere, in space, upon the land, water, and under the water with continuous high powered levels.

Such an energy synchronizer or converter has been built. It has been operated at full load continuously for days without a mechanical prime mover kept alive by the oscillations of the energies from the Cosmos.

This type of energy device is capable of converting the high frequency, high level of the cosmos, kinetic radiations by synchronization, into usable frequencies and voltages. Basically the theory of operation is as follows:

Oscillations by synchronization are started in the first stage of the circuit of the device by exciting it with an external power source such as the difference of potential between two points. The circuit is then balanced through synchronization until the oscillations are sustained by harmonic coupling with the energies of the Universe. The reinforcing action of the harmonic coupling increases the amplitude of the oscillations until the peak pulses "spill" over into the next stage through special detectors or valves which then prevent the return or feedback of the energy from the preceding stages. These oscillating pulsations drive each succeeding stage which oscillate at a controlled frequency and which are again reinforced by harmonic coupling with the ever present energies of the Cosmos. That is, the first stage drives a second stage, the second stage drives a third and so on. Additional stages are coupled or until a suitable power level at a usable frequency voltage and amperage is obtained by means of special resonant oscillators.

Once the device is in operation and delivering energy, it does not require the continuance of the original excitation induced by the difference of potential between two points to maintain the oscillations. The oscillations are sustained as long as the device remains properly synchronized and the external circuit is completed through a suitable load. This load may be maintained at as low an output as $\frac{1}{2}$ watt. The special tubes which are the key to the successful operation of this device are specially constructed ionic, cold cathode tubes.

All energies of the plasma of the Universe have resilient rigidity and density, which is subject to displacement and strain. When a resilient substance is subject to strain and then set free, one of two things will happen. The sub-

stance will slowly recover from the strain and gradually obtain its natural state or the elastic recoil will carry it past its position of equilibrium and cause it to execute a series of oscillations. Something of the same sort will also occur when an electrified capacitor is discharged through special high frequency valves. In ordinary language, there will be a continuous flow of electricity in one direction until the capacitor's discharge is completed and the first flow of energy will be succeeded by a backrush, as if the first discharge had over-run itself and recoil will set in. The capacitors thus become more or less charged again in the opposite sense, and a second discharge occurs, accompanied by a second backrush, and these energy surges will continue until all the energy is either radiated or used up in performing the delivery of energy through special oscillators on through the circuit.

When capacitors of very high dielectric capabilities are charged with radiant energy from the plasma of the Universe and then discharged through a circuit of proper impedance, reactance and inductance, and the oscillations of the device are synchronized with those of the Universe and electrical inertia is set up, the oscillations of energy will continue as long as this relationship is maintained. That is, in the reversal of the current the capacitors are charged and discharged and recharged and discharged slowly until the energy originally stored in them is delivered as kinetic energy through the device and, as I stated before, this activity is kept alive indefinitely, not by the mechanical breaking of lines of force, but by the oscillatory breaking of lines of the forces of the Universe through established resonance.

The reason we have to "throw," figuratively speaking, this energy out of balance to utilize these energies in the Cosmos, that is out of positive or negative balance, is to obtain what might be termed an electrically neutral balance to its surroundings. One might express it, "throw the energy out of phase with its surroundings." Another way to look at the same picture is to obtain a perfect balance or as near a perfect resonance with the oscillations of the Universe as is possible, causing an unbalance or excess of either positive or negative electricity in relation to the surrounding material to be charged. This excess of imbalance might be referred to as the point of charge. A rough mechanical example to the electric field of point of charge may be shown by the familiar three dimensional system of ropes. Suppose a charge of positive electricity is fixed in space at some point which we will call "A". Now suppose again a charge of negative electricity is brought to some point we will call "B", the negative charge "B" will experience a force which tends to draw it straight toward "A" as though the two were connected by an invisible stretched elastic cord. The negative charge at point "B" may be anywhere in space in the vicinity of "A" and still it is drawn directly towards "A". That is the relationship which one might use as an example of "A" being the radiant energy device and "B" the energy of the plasma. We may then think, if we like, of the space about "A" as filled or made up of stretched elastic cords, lines of force, extending outward in every direction from the charge at point "A". Now if the charge at "A" were given a rapid to and fro motion, it would seem likely that the waves should be formed and sped along the lines of force through space. This is the theory of the manner in which Radiant Energy is propagated. The waves in the electric field about the charge have been set in oscillation and is what causes an associated magnetic field.

Experiment is the best means of determining the variations of intensity with distance in the region of the space closely surrounding the source of

finite size. It is known that matter exhibits the curious behavior of discontinuity in processes in which it emits or absorbs energy.

Some, in contemplating Radiant Energy, become disconcerted when confronted with the dual nature of matter and motions. To them science has failed when an unified, unambiguous concept has not been presented, and they wonder why the quantum does not always behave at all like a wave. They ask, "How can we study the motion of a particle from one point to another when we cannot know for sure that the particle was ever at either point?"

Matter is susceptible to motion. The plasma is susceptible to stress. All atoms appertain either to matter or energy and continually pass from one to the other, thus producing kinetic energy. There at its very foundation, matter consists of electrical charges which govern the very motion of celestial bodies. The evolution of matter and the evolution of forces (energy).

There are ample writings and findings of N. A. S. A. now acknowledging that there is unlimited energy in the Universe, but to say one is able to tap this supply to some seems to be another matter.

Through the years of research with Radiant Energy, my attention has been drawn to some of the phenomena of radio-active substances and kindred efforts of research. All our research has been in one main field, that is, rates of vibration, which has led us to many interesting experiments and accomplishments. Not the least of these has been the breeding of lighter as well as the heavier materials by the bombardment of various isotopes with high speed particles. A somewhat similar example may be had in the work being done by a different method in Breeder Reactors that produce more fuel than they consume which makes it feasible to 'burn the rocks,' that is, to utilize the vast supply of thorium contained, not in rich ores, but in rocks such as granite.

Schuster pointed out in 1903 that every physical property for one element was found to be shared by all the other elements in varying degrees.

From the University of Wisconsin comes the writings of Doctors Farrington Daniels and Robert A. Alberty on Nuclear Chemistry, on disintegration of radio-active elements. It has long been known that the heaviest metals disintegrate spontaneously, but it is now also known that many lighter metals can be transmuted artificially.

There is much to be learned in the disintegration of the deuteron by a photoelectric effect and other mechanism which contribute to disintegration.

Analogy is perhaps the most powerful conceptual tool for understanding new phenomena or opening new areas of investigation. Early in this Century, for example, Lord Rutherford and his collaborators conceived the atom as a miniature solar system in which electrons circle the nucleus as planets circle the sun. One finds the same motions of matter and energy beyond the telescope or beyond the microscope. The concept of the electron moving in orbit around the proton to form the hydrogen atom, lead to the prediction that an electron might also move in orbit around its antiparticle the positron or positive electron. The short-lived electron-positron atom.

The Universe of the Atom, if one does not object to such an expression, opens up vast fields of research and potential accomplishments.

The Research Institute has applied original discovery and theory with resultant laboratory practical application to the discovery and breeding of U308, as also the lighter materials. There are many books and articles written on this subject, so I merely mention this field of energy and matter as interesting.

While on this subject of the vibrations of matter, be it in the Universe or beyond the microscopic, let me state that one finds another very interesting discovery for which we must acknowledge the help of Dr. Robert B. Craig, without whose accomplishment in obtaining the original support of a branch of the United States Government for research in Cosray Electric Therapy, this very valuable equipment might never have been given to the public. Also, we might not have made the discovery that the living cell oscillates very similarly to the oscillations of the Universe and can be expressed mathematically, much as the oscillations of capacitors under high frequency current effect.

In the presentation of most new ideas or discoveries, history has proven that the tendency of the human mind is to reject change. The finite speed of light was demonstrated by Roemer, but he was discredited and his discovery was not accepted until fifty years later. The story of the discovery of X-rays is somewhat the same.

In 1828 the school board of Lancaster, Ohio, served notice that the schoolhouse could not be used to debate such things as railroads and telegraphs as they were rank infidelity.

The scientists, in the days when Josiah Coppersmith discovered the telephone, asserted that the telephone was impossible because the human voice, and this was correct, could not be transmitted over a copper wire. The fact is just as true today as it was then, but the telephone still works.

Thomas A. Edison was denounced by the French Academy of Science and his phonograph was called a hoax. They would not even permit a letter written by Edison on his invention of the phonograph to be read on the grounds that Edison was a charlatan!

Mr. Westinghouse, the founder of the now great Westinghouse Electric Company, foreseeing that alternating current was the only answer to the problem of transmitting electric power over long distances, made experimenting with alternating current a specialty. This action was met with great opposition and Mr. Westinghouse was told by "the most eminent engineers of the World" that the alternating system was uncommercial and not worthy of serious consideration.

Dr. Goddard's V^2 rocket bombs were rejected until the Germans nearly won a war with them.

The Wright Brothers had to go to England to put their airplane over because it was claimed it was impossible for a heavier than air device to fly.

Hyrum Stevens Maxim, a son of the State of Main, had to go to England, and he was later knighted by Britain for his discoveries which were rejected here.

Charles F. Kettering of General Motors fame wrote, "Some business men believe if you build a beautiful laboratory and fill it with expensive equipment and hire a number of high salaried men with lots of scientific degrees, you

will have a fine research organization. No. Facilities are all right in a laboratory, but its the men who count. Just as in a studio, it is the artist who counts, and a good research man, by the way, is an artist. Work in a laboratory may be weeks, months, or years of drudgery. Some of it can be done by the average worker. But when you break through into new territory, enter an unknown door, go down that lonesome road (and no one who has not gone down that road can know how lonesome it can be,) it is THE ARTIST'S POWER OF CREATIVE IMAGINATION which carries you. That is why it is so hard to pick good men for a research laboratory. You may pick top men from the finest engineering and scientific schools. But if they haven't that inner spark, the curiosity, the wonder, the feel of things, they are no good. *** They must have the enthusiasm and latent powers of creation." Dr. Kettering continues "I have no fuss with our colleges--they cram the boys to the gills with knowledge. But I wish the professors would do one more thing. I wish they would teach the boys how little our present knowledge is, how much of that knowledge which seems true today will have to be thrown out of the window tomorrow, how many things which can be proved impossible today, with two slips of a slide rule will be possible and in operation ten-years hence," end of quote.

In 1904 a college laboratory had a sign on the classroom wall which read, "All the fundamental laws of physics have been discovered."

Dr. Kettering continued by saying, "In research you need a lot of intelligent ignorance. When you begin to think you know all about any subject, it stops your progress dead in that subject. It is not the things you don't know that hurt you--its the things you think you know for sure that are not so. The electrical people knew that one could not develop an electric self-starter... that was my good luck." "The chief thing we ought to do is to quit being afraid of the change of the future. Change is the law of life. We should work with change instead of being forced into it. All education teaches finality. Business clamors for stability. We are teaching and demanding what the world is not. Our thinking is conventionalized. Anything radically new is cuckoo."

It was on June 24, 1925, that I discovered that by alloying Germanium with various substances I was able to make a valve for a radio receiver capable of reception of considerable strength without the use of tubes, batteries, or other accessories, which were then considered essential in radio receivers. This Germanium alloying material was used successfully for the detection and amplification of radio signals without the use of any batteries or any outside source of electricity.

An interesting observation of some views of yesteryear is had from another statement from a U. S. Patent Office Examiner, made before the advent of the now new, recognized electrical devices and other technical advances made with semi-conductors in our transistorized day: To quote, "The claims are rejected as being drawn to an apparently inoperative device. It is thought the device will not produce a sensible current, since no means is provided for causing the cathodes to emit an appreciable number of electrons. The current produced in the cathodes by the antenna and ground will not heat the cathodes to a temperature at which an appreciable number of electrons per second are emitted," end of quote. Cold cathodes were not used much those days. Perhaps ionic action in the tubes was desirable. Perhaps, as explained, before a build-up of oscillatory synchronization from the first stage on through the many other

stages was another answer, and the examiner did not take into consideration that by rubbing two sticks together one could eventually, if the spark was husbanded from a tiny spark, produce unlimited energy. Especially if a suitable draft of air were introduced little by little into various stages of adding fuel and nursing the flame from an infinitesimal spark to the final combustion. Such an example might help to explain any energy build up.

During the early morning hours of September 3, 1926, I first successfully operated a sound detector device. After months of work in the laboratory, it was possible to "pick up" conversation and music from thousands of feet away from the laboratory. One interesting test was made by and in the presence of Attorney R. L. Judd, his son, Thomas Judd, and E. G. Jensen, all of Salt Lake City, Utah, of what this device would do.

In October, 1929, a scientist from Russia, Dr. A. A. Yakalov came to the laboratory and witnessed tests of the Radiant Energy equipment as well as listening to conversation brought in by the Sound Pickup Device, conversations which were going on some five miles from the laboratory, that is, in the Denver and Rio Grande Railroad Station in Salt Lake City.

By 1936, the Sound Detector Device had been improved to where it would operate radio loud speakers. Up until this time only head 'phones had been used. The signals were brought in loud and clear. An interesting test of both the Radiant Energy equipment and the Sound Detector Device was given to General Shinkle and Captain Deitrick of the U. S. Army in December, 1936. These Army gentlemen, with about eight civilians, witnessed these experiments. The General said he was very much impressed and asked how the Sound Pickup equipment might be obtained for the Government. I told the General I would give it to the Government free of charge, the only requirement being that the government give the device the Moray name. The General said he would report it to his superiors. It was later reported to me and others that an official report had been filed in Washington by the General, but the government did not see fit to accept the offer. This report was made to us by U. S. Representative Thomas Amlie of Wisconsin.

From 1936 to 1938 tests were made at various times with scores of people present of a Radiant Energy radio. This radio, on several occasions, received broadcasts direct from Little America from Admiral Byrd and his party in the Antarctic. These broadcasts came in over a loud speaker clear and distinct on occasions when regular radio broadcasting stations reported that interference was so severe they could not receive Admiral Byrd's broadcasts from Little America because of weather conditions.

Radiant Energy devices have been experimented with in all kinds of weather, in all kinds of places, in buildings, out in the mountains, more than 100 miles away from any electric power line; away from all civilization, in the desert, on the earth, in the air, under the sea.

Experts who have seen the Power Equipment in experimental operation have been allowed to examine the device in operation and have torn it down or seen it torn down, dismantled part by part. Nothing that contained electric power could be found, and the conclusion had to be that the power came from the Universe as claimed.

The public was permitted to see experimental tests during these years of testing. When certain phases of experimentation were completed, these public experiments were discontinued. Whenever any important additional discoveries were made which required a great many tests and experiments both in the laboratory and outside at places selected by those who were to help conduct the experiment, scientists and other individuals were permitted to witness these experimental tests. This phase of experimentation was again discontinued at the request of our Washington patent attorneys.

Later, some of the most revolutionary and far-reaching discoveries in Radiant Energy that had been made, required that the device be given a test in an automobile (with no antenna or ground). Such a test was made by a continuous operation run from Salt Lake to Denver, Colorado, and back to Salt Lake City over U. S. Highway 40.

The device, on an endurance test, was operated under standard R. R. seals for a total of 157 hours and 55 minutes, when the seals were broken and the device put under severe strain and tests were made for about an hour longer and then shut off.

Close examination of the device disclosed that all parts were in perfect shape and could have been run indefinitely. During the entire test, the lights burned evenly and brightly without flickering, and there was no change in their brilliancy from day to day.

The quantity of current passing through the secondary of the transformer was sufficient to burn up wire of that size if ordinary current were used, yet there was no heating of the transformer even though there was no circulation of air through it to cool it, as it was completely enclosed in a sealed trunk. All parts of the machine will run absolutely cool, regardless of the length of time operated.

It makes no difference whether one fifty-watt lamp is used or whether a 300 KW load is connected to the machine, the draft of current is adapted to the load. There is not a sound from the machine when in operation, there being no moving parts.

At another time, an experiment was made in the presence of a nationally known physicist, a professor in one of the greatest Universities of the country, at which time he noted and mentioned the following, I quote:

"That when the oscillators are connected in the circuit, the condensers fill slowly, and the longer the current is applied to charge them, the greater the charge they take, up to their maximum for the applied voltage, much as in filling a bucket by pouring the water into it, instead of taking the charge practically instantaneously as is ordinarily the case with condensers.

"That the globe on one spot is much hotter than is ever the case with any current used at the present time, due to the incondenscence of the gas in the globes under the influence of the very high frequency current, yet the rest of the light globe remained cool.

"That the size of wire in the transformer could not carry the amperage passing through it without burning up, if ordinary current were used, yet all

the wires of the device remained absolutely cool no matter how long the machine was operated.

"The above points show that here is developed something which is entirely out of the ordinary and cannot be accounted for on the basis of induction from existing power lines or current from batteries," end of quote.

Many men of science have come from foreign countries and from the East and West and have witnessed experimental demonstrations and not one of them has been able to find any technical fault with what they have seen. These men have had the device opened for their inspection and have pronounced the current as high frequency. They have said that the color of the light was whiter and more intense, yet easy on the eyes, and that the device carried many times as much current, without even getting slightly warm, than any similar circuit could have born without burning up.

It is not claimed that all of my theories are proven, but it is claimed and proven that the device works. The results are certain, and, in the absence of a better explanation as given in an early edition of "Beyond the Light Rays," my explanations are as good as any.

Radiant Energy, according to the Moray concept, means energy from the Cosmos, proceeding from a center in straight lines in every direction. Energy may be defined as a condition of matter in virtue of which any definite portion may effect changes in any other definite portion. Energy then is a state of matter or rather the result of a particular state or condition in which matter may be when any observed phase of energy appears.

A member of a noted Patent Law Firm in Washington wrote me, to quote, "I feel that you readily appreciate the fact that from a standpoint of the law on public use, patentability and a general safety standpoint, there is a definite disadvantage in all demonstrations up to the time when you have on file in the United States and desired Foreign Countries all applications which it is desired to file. However, the important thing is that the machine or device operates and, therefore, at this time theories of operation are unimportant. For instance, the explanation of the backrush effect of condensers should be sufficient to satisfy anyone as to the operation of the condensers in acting as reservoirs for the distribution of energy. This is equally true of the statements about the device oscillating in harmony with the oscillations of the Universe, in face of the evidence of operation which is now in your possession and the data you left with me," end of quote.

One difficulty which has hindered man in forming a true picture of the objective world is that mixed blessing-egotism. In early centuries man could not escape from the false assumption of his own pre-eminence, and these same shackles are still prejudicing the observations of some of us.

What is needed to prepare Radiant Energy for commercial use? It is necessary to standardize the tubes in order to obtain unified results from every tube. As it is now, we may make one hundred tubes, about two of these may meet all the requirements, the rest may fail to come up to standard. Sometimes none of them will operate as they must to have the critical balance and combined synchronous resonant action required.

There are no ready made measuring instruments we know of which we can purchase from the trade today which will give us a true reading of Radiant Energy Power tube characteristics. Therefore, instruments must be specially made. We have developed some such instruments, but they are not wholly satisfactory, as they do not give absolute readings under the wave lengths and other energy characteristics. In later commercial construction, such instruments will cost about as much as other standard measuring equipment.

Cost of Radiant Energy Power tubes now run quite high for a set of 29, which one unit requires, about \$500.00 average for each tube. We must have tubes which will function as valves and some as oscillators and so on; each type tube must be in a certain position in each stage in the circuit, and they will not operate in any other position. They also must synchronize and balance perfectly for resonance.

When in operation, Radiant Energy will require less attention than a good radio to produce 60,000 Watts of energy, with a weight of about one pound per KW. Any number of units may be connected in Delta and Star, as is done in modern power transformer practice. A 60 KW unit will be about 30" x 26" x 14" as estimated from the size of former instruments. It is now estimated, because of present advances in present dielectrics that a 100 lb. unit can be made to deliver 300 KW. gross weight, not net weight. No shielding being required for Radiant Energy devices.

Standardization of Radiant Energy offers no insurmountable problems, but it is impossible now to determine the exact time which will be required to develop and prepare for the commercialization of Radiant Energy. I estimate at this time about two years after the necessary equipment is available.

I have said before this evening, that for me to go into a complete account of how to harness this energy would be impractical and impossible at this time. The whole thing might be repeated in a few words quoted before from Dr. Nikola Tesla, to quote "Throughout space there is energy. Is this energy static or kinetic? If static, our hopes are in vain; if kinetic, and this we know it is for certain, then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature," end of quote.

This I have been able to do through the use of certain special valves and oscillators that I have made and of which Doctors of Science have said are the most powerful devices known to science today. Let me repeat, when an elastic substance is subjected to strain and then set free, one of two things happen. The substance may slowly recover from the strain and gradually attain its natural state or the elastic recoil may carry it past its position of equilibrium and beyond, and cause it to execute a series of oscillations. In other words, there may be a continuous flow of energy in one direction until the discharge is completed or an oscillating discharge may occur. That is, the first flow may be succeeded by a backrush and succeeding backrushes, the oscillations going on until the energy is either radiated or used up in the energizing of the conductors. If your device will oscillate in harmony with the oscillations of the Universe, or in other words, if the device is capable of synchronization with the vibrations of that energy throughout space, then the oscillations will go on forever. No one can call such an arrangement perpetual motion any more than one can call the motion of the earth perpetual motion. The Radiant Energy device oscillates because of the oscillations of the Universe.

We speak of generating electricity. To be exact, we only transfer it from one to another place (pump it, if you please). We cannot generate electricity. We can neither create nor destroy it. After we have used it to light our homes or do all other work, it is like water over the wheel--no less water, only a lowering of potential. The electricity has only "sunk back" from whence it came, ready and waiting for nature or man to raise its potential when it again is ready to do man's bidding. Or in other words, in the evolution of energy, it "sinks" back from whence it came as it is naturally very slowly but steadily being liberated from the plasma. Man may, by proper means, make the process of liberation rapid rather than the natural slow way of nature.

I fully realize elements maintain an equilibrium by rotations, attractions and repulsions, but this does not interfere with a transformation of equilibrium which, when the transformations of equilibrium are rapid enough, become heat, light, and electricity. Matter is continually changing into energy and energy into matter.

Let me again repeat, there can be no production of current electricity without an interruption of equilibrium. Whatever the quantity of electricity, it will produce no kinetic energy if there is no disturbance of equilibrium, that is to say, change of potential or electrical level.

I thank you for your attention and for the opportunity given me of attempting to give you some idea of my concepts of the theory of the principles on which the Moray discovery operates.