RADON GAS IS THE ULTIMATE FUEL THAT HOLDS AN ENORMOUS AMOUNT OF ENERGY

The source of energy described in this paper could provide us with all of our energy needs for countless of generations. With this energy we can reach for the stars, or at the very least explore our own solar system. The fuel that is referred to here is called **radon gas**. It releases more energy than any single element ever to be discovered. Radium was the first element discovered by Madame Curie in 1898 while seeking the cause of radioactivity of pitchblende, her electroscope showed it emanating from radium. It is a highly radioactive gas that emits alpha particles. The radon gas that it generates from its transmutation is even more active. Radon further transmutates into the element Polonium, named after the Country where Madame Curie discovered it, Poland. Uranium ores contain only about 100 micrograms of Polonium per ton. In 1934, it was found that when natural bismuth (Bi^{209}) was bombarded by neutrons, Bi^{210}, the parent of polonium, was created. Milligram amounts of polonium are now prepared this way, by using the high neutron fluxes of nuclear reactors. $Polonium^{210}$ is a low-melting, fairly volatile metal, **50%** of which is vaporized in air in 45 hours at 131°F. It is an alpha emitter with a half-life of 138.39 days. A milligram emits as many alpha particles as five grams of radium. This represents a whopping five curies per $1/1000^{th}$ of a gram, making polonium 5,000 times more powerful than radium. The energy released by its decay is so large (140W/g) that a capsule containing about half a gram reaches a temperature above 932°F. A few curies of polonium will display a blue glow, caused by excitation of the surrounding gas. Almost all its alpha radiation is stopped within the container that it is stored, where it gives up its energy. For these reasons polonium is an attractive lightweight source of energy. Twenty five isotopes of polonium are known, with atomic masses ranging from 194 to 218. $Polonium^{210}$ has been the most readily available. Isotopes of mass 209 (half-life 103 years) and mass 208 (half-life 2.9 years) can be prepared by alpha, proton, or deuteron bombardment of lead or bismuth in a cyclotron, but this method has proved to be quite expensive.

There exists an atomic transmutation process that I propose to use to economically obtain radon gas that is to be used to fuel the direct conversion **alpha particle ion valve.** This process is proprietary. With this process it is possible to release the radon fuel that has been stored up in uranium or thorium ores in a shorter amount of time than they are normally

released. Conventional nuclear reactors split fissionable **U235** atoms into many jagged atomic fragments. Deadly nuclear by-products are created that are required to be stored and shielded from hazardous radiations for thousands of years. The method to obtain the energy that is contained in either uranium or thorium does not crack their atoms. The methodology created by me utilizes an optimum geometry to obtain the gas more quickly which doesn't unnaturally alter the atoms.

U-235 vs. Radon Decay

When radium transforms, a great deal of energy is liberated continuously as heat. The amount of stored energy in this transformation is of a very high magnitude. One gram of radium evolves about 134 calories per hour, and the total heat available is over **2,000,000,000 calories**. One quarter of the generated energy comes from the decay of radium into radon gas. The remaining three quarters comes from the decay of the radon gas. One gram of radon therefore represents **1,500,000,000 calories** per gram. This translates into **5,944 BTUs** per gram. Therefore, one pound will generate **2,698,825,592 BTUs** of energy. The radioactive fuel in a nuclear power plant generates only **200,000,000 BTUs** per pound in comparison. What this translated into is that radon gas generates **13.5 times** more BTUs than a conventional nuclear reactor pound for pound of material.

Radon gas is present everywhere in our atmosphere. It is one hundred times more concentrated in our soils. Planet Earth has been exposed to this source of energy since its birth. It may well be the very source that gave life to all living systems. It may as well be the very source that saves humankind. It was known by the Atomic Scientist of yesteryear that if a suspended wire was given a **negative charge** of **1,000 volts** or greater, that it would collect enough radon gas from the surrounding air to produce an effect on a photographic plate. This example demonstrates that radon gas can be harvested from the air and using it to fuel my direct energy converter. In the future it might not be absolutely necessary to mine a radioactive ore to harvest this unique fuel source. Radium is widely distributed throughout the minerals of the earth.

An approximate reported calculation indicates that every 2.6 km^2 (1 mi^2) of soil to a depth of 15 cm (6 inch) contains about 1 gram of radium, that emits radon in trace amounts to the atmosphere. The radioionic energy that this active gas emits is everywhere around us just waiting to be siphoned.

We breathe and live in this "Sea of Energy" 24 hours per day, seven days per week, and 365 days per year.

Radon Fuel Source

The energy that is condensed in elemental radium is immense. According to the law of conservation, when we give to a material body a determined quantity of energy, this energy might be transformed, but the body will never give back a quantity in excess of what it received. This principle is considered too self-evident to be disputed. It makes sense that matter can only give up energy that is given to it and is unable to create excess energy. Without violating this law, uranium or thorium can be excited into giving up the stored atomic energy that is contained within their atoms. The energy in uranium or thorium is a condensed form of matter that becomes uncondensed if their oscillations become violent enough and henceforth transforming their matter into radioionic energy. Scientific principles are not being violated, they are expanded. There is no fringe science involved. The energy that is stored in radium is very old and is being harnessed in a unique way through my direct conversion methodologies. It is for all practical purposes a limitless source of energy. The radioionic energy generation technology does not depend on dangerous levels of radioactivity to generate electrical power. The radon fuel source in an alpha particle ion valve is safely contained and if the glass tube that contains it were to crack or break it would safely dissipate.

Radon Source Extraction

Otto Hahn discovered that a radium preparation in a state of fine subdivision evolves large amounts of radon gas. His **U.S. Patent No. 1,655,184** describes his principle effect in detail. My proprietary radon source material offers an improvement over this prior art because it eliminates the need to isolate radium. Where an inexpensive source of radon gas is required, the full value of my radon source material is fully appreciated. My manufacturing method creates a highly porous; electrically non conducting ceramic like material that readily evolves radon gas to be used in conjunction with his *alpha particle alpha particle ion valve*. It is a system that converts radioionic energy, kinetically active ions, cosmic energy, call it what you will, into useful electrical power. Think of the radioionic energy as a type of energy detonator that liberates great quantities of energy using a small exciting spark, similar to the spark that is

used to liberate the energy from the petroleum fuel that powers a combustion engine. The concept is not that much different from how a lighted matchstick is able to start a bonfire. The big difference is that the radon fuel source is an atomic spark that generates ion multiplication when it reacts with the correct accelerant. While, the chemical tipped match stick reacts with a chemically based accelerant. The principles are pretty much the same, only that one reaction is atomic and the other is a chemical reaction.

Direct Conversion to Electrical Power from Radioionic Energy

The radioionic energy direct energy converter proposed will harness the energy stored up in either **uranium** or from **thorium**. It is preferable to use thorium because the radon gas that it generates is short lived and doesn't present a health hazard, unlike the radon gas which uranium generates. **Radon gas** is the fuel source that operates the direct conversion *alpha particle ion valves*. If this gas could be economically obtained from the air that we breathe there would be no need to collect uranium or thorium ores.

My direct conversion alpha particle fusion ion valve is a result of his unique radio vacuum tube experiments where he replaces the conventional heating filament with a semi conductor. This in effect replaces the requirement of its heating element; thereby many of the objectionable limitations inherent to high temperature cathodes are not present. He discovered that if the cathode is a **delta ray** emitter and a source of alpha particles is introduced between it and the anode high energy electrons are generated and they are converted directly into electrical current.

The reality of a direct conversion alpha induced fusion reaction has been shown in **US Patent No. 7,800,286** and is within the realm of scientific feasibility. I utilize a semi conducting alpha particle fusion reactive material, in conjunction with a substance that generates a radon gas that emits energy above 6 MeV. The electrical power is generated as a direct result of the fusion process is described by me in the above referenced patent. When it is used with a properly designed oscillating or resonating electronic circuitry, useful electrical power is obtained.

In patents that date back to 1913, there exists claims of electricity generated from charged particles emanating from nuclear disintegrations. To the best of my knowledge, there are no patents that make any claims to

fission or to fusion processes. Thomas Henry Moray, now deceased, from Salt Lake City, Utah, claimed to have utilized a fission process in his prototypes but he wasn't granted one patent for his contributions because the patent examiners couldn't understand his technology, as nothing existed in the prior art of the day. There are thermo-electric and thermionic direct conversion devices in present use; a direct conversion system has the advantage of no moving parts. It will operate with the benefit of passive components. It is a known scientific fact that the radioisotopes that are presently used provide considerable amounts of energy. The drawback to state of the art radioisotopic generators is that they are inefficient and require heavy radiation shielding.

My proposal herein is concerned with the direct conversion electrical power system, making use of alpha particle fusion reactions instead of fission reactions that rely on forced neutron particle generation that have deadly and undesirable consequences, which present-day nuclear reactors generate, along with a lot of waste that takes the form of thermal energy that isn't utilized. A chain reaction results with every alpha fusion that releases a cascade of charged particles (ions). The efficiency of this type of reaction is expressed in terms of its *multiplication factor*. Its major emphasis is on the utilization of radon gas as a fuel source that naturally generates the alpha particles that are required by my direct-conversion process to generate useful electrical power which is both compact and safe to biological systems. The fuel source is to be derived from naturally occurring radioactive material (**N.O.R.M.**) or from the waste by-products of the nuclear industry (currently being dumped into the environment with dire consequences) that contain an abundance of radon gas. The system envisioned under this proposal will possess extreme advantageous power to weight ratio than what is obtained from a fission reactor. My converter will not develop a lot of thermal energy, which must rely on large auxiliary devices as heat radiators, pumps, etc. For this reason, my converter can be built lighter and smaller than prior art nuclear energy technologies.

Research fission fragment converters[1] have been built, the cell of which has a very thin layer of fissionable material covering the surface of its cylindrical-shaped cathode. Neutron bombardment releases fission fragments across a vacuum gap that is provided between the cathode and an anode which acts as the fragment collector. These particles carry, on the average, about 20 positive charges, and the average kinetic energy is about 80 Mev. Continued open-circuit operation can lead to the buildup of

an electrical potential of approximately 4 x $l0^6$ volts. By matching the load resistance to the internal fragment current, one can obtain any voltage below this value.

My proposal differs in the fact that the energy levels concerned are much lower and the fusion reaction does not require the use of damaging neutron bombardment. My alpha fusion direct energy conversion technology allows for the use of much lower radiation levels than is presently obtained from a nuclear fission reactor. This presents a low or near to zero radiation hazard, resulting in a decrease of excess heat, thereby eliminating the need of large radiators for cooling a reactor. No hazardous waste product is created that would require radiation protection and an expensive and unacceptable long-term storage plan. My proposal only requires a low-fuel inventory of inexpensive, readily available, N.O.R.M. or radioactive waste obtained from the nuclear industry, which makes it an even more desirable electrical power source.

What I propose is electrical energy obtained through the use of charge multiplication which is generated by the use of a delta emissive semi-conductive substance that is used as a target material which is contained in a vacuum tube that acts as an effective radiation shield. Electrons are emitted from the target substance when impinging high energy alpha particles undergo a nuclear fusion reaction when they react with the target. The source of alpha particles that my energy converter uses is supplied from a suitable radioactive source that generates radon gas during its natural transmutation process. Delta emissive semiconductive material will form an integral part of a series of specially designed and constructed cold cathode vacuum tubes. These vacuum tubes will operate in conjunction with properly designed electronic synchronous circuits that will deliver a pre-selected voltage and frequency.

The direct conversion **alpha fusion ion valve** is designed to operate on a minimal amount of excitation energy (between 6 Mev to 8 Mev), thus the heat of reaction due to its nuclear source is kept at a minimum. It is anticipated the temperature that is associated with the operation of this device will be several orders of magnitude smaller than is normally associated with that of the standard fission fragment reactor. My production unit is expected to use radio thorium as its fuel source giving it a half-life of around two years. It is a simple procedure to replace the valves. The tubes are designed to be plugged in and out of the device in the same manner as

is done with a tube set radio.

An oscillatory circuit excited by a capacitance discharge through the **ion valve** makes the converter a pulsating power source. The output of the circuit is used with a feed-back design that is used in conjunction with the direct converter itself. This system, converter and associated circuitry, generate an Alternating Current and functions at a high frequency allowing for good control and higher efficiency for the applications that are selected. The direct result of alpha particles that impinge upon and react on a delta emissive semiconductive target results in the delivery of an appreciable amount of energy derived from the resulting fusion reaction, without the addition of a supporting battery or other stationary or mobile source of energy.

I call attention to the fact that prototype working models have been designed, fabricated, and their operation demonstrated to competent observers. These prototype models have been shown to operate by the now deceased Thomas Henry Moray. The theoretical discussion that I present is only to show that the various concepts which are involved in the operation of this direct conversion electrical power system are plausible, and that the technological concept, at the very least, warrants further due consideration.

It is my firm conviction that this concept of a direct conversion electrical power supply possesses unusual merit, and that by this means I feel a highly efficient, relatively low-cost, high *power to weight* ratio 'power supply' can be successfully developed. In as much I have spent several years of research using my own personal funds on this ground-breaking energy technology in the above proposal, I declare that a small portion of my research is proprietary to retain a competitive edge in the marketplace with the technology.

My objective is to secure from a synchronized capacitive-inductive resonant electronic circuit, in conjunction with a unique cold-plasma vacuum tube that utilizes an electrically semiconducting delta ray target which is activated from an alpha particle source in an ionized gas environment, useful and cheap electrical power.

Although no new laws of energy are being advanced or claimed as having been discovered, the application in the method of utilization of the energy

through an alpha particle fusion reaction that is used in conjunction with my proposed vacuum tube (**ion valve**) direct energy converter is unique, in that, "generation" is accomplished by oscillatory utilization of radiation oscillations rather than by the conventional power generating systems, each alpha particle reaction of itself being a minute generator of **molecular ions**.

I have referred to a form of ionic action in place of the common electronic liberation accomplished in radio tubes. It is an accepted fact when various substances are bombarded with alpha particles, they are found to give off electrons. This is the fundamental principle involved in my **ion valves**. The liberation of electrons from a substance that reacts with an alpha particle Thomson named "**delta rays.**" These delta rays (electrons) are thought by some to originate in a type of ionization which might be referred to as "thermions," given off when the alpha particles strike the bombarded substance that generates the atomic fusion reaction. Just as **sodium, potassium, cesium, rubidium, barium,** and **strontium,** react to visible light, or let us say wave lengths, within a certain range; it isn't too difficult to comprehend how electrons are generated when an alpha particle impinges upon a delta ray substance.

I propose to pursue further my research to obtain the radon fuel source from its parent ores. I also propose to further my research to construct **ion valves** with the most cost effective methods. What I claim is the application of the concepts and the derivation of energy for a unique direct conversion system. The "generation" is accomplished by extensive exploitation of resonance or oscillatory principles rather than by conventional methods. I do not believe that new physical laws are being advanced by my proposal. My experimental work indicates that the charging and discharging of capacitors conforms to the fundamental frequency which is produced. There is a multiplicity of phenomena that occurs in this device which require further investigation. This investigation is to be conducted to determine the most effective delta ray semiconductive material, and to assess what is the most efficient resonating or oscillating circuit to use in conjunction with the *ion valves*. The need, if any, for either biological or equipment shielding should be considered further. My experience, to date, indicates that the necessity for such shielding will be practically nil, in view of the fact that a pure alpha emitter is being used as the fuel source, as alpha particles cannot penetrate a substance that is any thicker than a piece of standard printer paper.

A Nu Science belongs to a future generation. It involves the means of releasing radon gas from its uranium prison. The alpha particles that are generated from the decay of radon can be attracted with a negative charge to an electrode where it can react and produce secondary electrons. Energy is liberated through an atomic fusion transmutation process. This is the exact opposite of fission, or the splitting of atoms. The science that will make this all possible is a discovery called photodisintegration. It is this effect that allows us to speed up the natural decay chain of the uranium matrix. This was discovered in the early 1920's by Thomas Henry Moray. Because of the paranoia over nuclear processes and the spiritual immaturity of humanity, this technology might not be received for a few more generations to come.

Valuable Resource

We are living in a sea of radon. It is created from the natural decay of uranium and thorium minerals in the earth. It diffuses out of the ground into our air. It is responsible for over half of our background radiation count.

The electrical generating devices of Thomas Henry Moray, Alfred Hubbard, Reverend Antonio d'Angelo, Joseph Papp, and others contained radium, a source of radon gas. With this natural fuel source electrical power is obtained with no moving parts. It can be procured right from the ground just as all of our other valuable resources are obtained. The atom no longer has to be split to harness its storehouse of energy.

Direct Conversion of Alpha Decay

The atomic ions emitted from naturally occurring or artificially induced radioactive transformations can be directly converted to electrical power. With this realization comes a natural source of cheap electrical power that can be obtained from the earth.

It is widely known that when beryllium is mixed with radon gas *neutron* energy is generated. What has been completely missed is the fact that when another element introduced with radon instead of the beryllium that

other states of secondary energy emissions can result. For example; mix germanium with radon and secondary electrons are generated.

Electrical power could be generated for many years using my discovery, with little maintenance, replacing only the electrodes from time to time.

Radon Catalyst

There is a unique type of helium that is derived from radium since it appears to possess the property of vanishing. In fact, it only resembles ordinary helium because of the momentary presence of the spectral rays of helium. It is a catalyst with an interesting effect. Its energy appears to be transported to the substance that is being catalyzed. This cannot be explained, unless we acknowledge that this unique catalyst is an unstable isotope of helium, which undergoes atomic transmutation. The quantities of energy that is released from this transmutation must be considerable. We can reach this conclusion because the small amount of ejected particles coming from radioactive matter possesses an enormous velocity, carrying with them enormous amounts of energy. In fact, the quantity of matter that is ejected is so small that it has eluded all attempts to measure it. The catalytic helium that is obtained from radium could simply be a liberator of energy. It could be what triggers the alpha fusion process. As in an atomic reactor the fissile material is worn out, this is to say that our helium isotope is also worn out.

Excerpts taken from "The Sea of Energy" **T.H. Moray,** 1978 5th edition, **pages 229-230**.

Thomas Henry Moray, Alfred Hubbard, Reverend Antonio d'Angelo, and Joseph Papp were all aware of the radium compounds that they used in their energy devices. It appears that only Moray was aware of the effects of using radon gas as catalyst and its relationship to generating electrons. Not only does radium give out these rays, but it has the power of picking up any Roentgen rays that may be about. If you are looking at a piece of radium in the dark through a fluorescent screen, you will notice that it shines much more brightly than before if Roentgen rays are being generated in the same room, showing that it has the power of picking them up and giving them forth again in an altered form electrical energy.

Radioactivity also can be increased by simple means. The German Dr. Alois Gaschler applied for a British patent in 1925 for the enrichment of uranium by a treatment with several kilowatts of direct current:

"The behavior of uranium and thorium and their salts in the electric arc and in the glow discharge has been examined. In no case could there be observed an alteration in the radioactivity or in the chemical activity. A perceptible transmutation effect was, however, unexpectedly found when strong rushes of momentary high-tension currents were sent through a narrow fused quartz tube provided with tungsten electrodes and containing mercury and uranium oxide. The tube was fixed vertically in a stand, so that the mercury filled the lower part of the tube and one tungsten electrode was completely covered by it. On the surface of the mercury was a relatively thin coating of uranium oxide which had been carefully freed from radioactive by-products, especially from Uranium X, before it was introduced into the quartz tube. The sparking distance between the tungsten electrode and the mercury-uranium oxide electrode was about 15 cm. The intensity of the electric discharge varied between 0.3 and 0.4 amps."

"Under the influence of repeated electric discharges during about 30 hours, relatively strong and increasing radioactivity beta and gamma rays] showed itself The beta and gamma ray activity varied between 1.4 and 20 times the radioactivity of an equally large amount of uranium oxide in equilibrium with its decay products, and increased proportionally to the energy applied and to the time."

"One obtains an even greater proportion of Uranium X if one makes the electric discharges pass within a thick-sided quartz or porcelain vessel between a tungsten point and mercury covered with a thin coat of Vaseline and uranium oxide. This coating possesses such a high electric resistance that, even when applying the highest tensions which can be obtained, one is obliged to diminish greatly the sparking distance in order to obtain a discharge. This proceeding offers the advantage that the energy is concentrated into a very small space. Consequently one can show after half an hour’s work the production of relatively large quantities of Uranium X."

"The production of Uranium X is considerably in excess of that produced by spontaneous decay is to be explained only by the fact that, under the

influence of the electric force, an acceleration of the radioactive transmutation of uranium takes place."

Dr. Thomas H. Moray developed a method in the 1950s to enrich uranium by high energy bombardment. He treated the ore (in a chemical solution) with x-rays (up to 24 MeV). The average ore contained 0.23% uranium oxide. After irradiation, the ore yielded from 7-75% uranium oxide! In 1953, Moray proposed that the Atomic Energy Commission investigate the aging of atomic ores by a breeding type reaction with high energy particles or x-rays in the presence of a proper environment. The AEC declined to grant a contract.

Fortunately, the technologies invented by Gaschler and Moray are dormant. Meanwhile, it is imperative that we develop every possible pathway to the deactivation of nuclear waste and weapons.

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Neutron-induced radioactivity

In September 1934, Leo Szilard and T. H. Chalmers let gamma rays fall onto a beryllium target, noting that emissions from the target induced radioactivity in iodine. "We conclude," they wrote, "that neutrons are liberated from beryllium by gamma rays." Two months later, A. Brasch and colleagues, including Szilard and Chalmers, reported a similar effect using X-rays rather than gamma rays. More ominously, the existence of neutron-induced radioactivity also suggested the possibility of neutron chain-reactions — using the neutrons emitted by radioactive elements to induce radioactivity, and liberate further neutrons, from other nuclei. The first demonstration came four years later, following the discovery of nuclear fission in uranium.

See; looking back: “Breaking up is easy — nuclear fission discovered”

Nature **134,** 494–495; 880 (1934) **Detection of Neutrons Liberated from Beryllium by Gamma Rays: a New Technique for Inducing Radioactivity**

We have observed that a radiation emitted from beryllium under the influence of radium gamma rays excites induced radioactivity in iodine, and we conclude that neutrons are liberated from beryllium by gamma rays.

Chadwick and Goldhaber were the first to observe a nuclear disintegration due to the action of gamma rays. In their pioneer experiment[1], they used a small ionization chamber filled with heavy hydrogen and observed that protons were ejected from the heavy hydrogen under the influence of gamma rays from thorium C. Their method can be used for the detection of the gamma ray disintegrations of other elements; as such disintegration would generally be accompanied by the ejection of *charged nuclei* which their method is designed to detect. On the other hand, apart from the unique case of heavy hydrogen, their method does not appear to give direct evidence on *neutron* radiations, which may in certain cases accompany gamma ray disintegrations.

It appeared to us of interest to search for such neutron radiations, and we thought that the Fermi effect might conveniently be used as an indicator of their presence. For certain reasons, we chose to use as indicators elements which, like iodine, are transmuted in the Fermi effect into their own radioactive isotopes.

In order to make our test more sensitive, we applied in this work the new principle of isotopic separation which we recently described[2]. In the present experiment we have used iodine as indicator, and separated radio-iodine from the bombarded iodine.

In one experiment we surrounded 150 mg of radium in sealed containers of 1.0 mm platinum filtration with 25 gm of beryllium, which was further surrounded by 100 c.c. ethyl iodide. The silver iodide precipitate obtained after irradiation from the ethyl iodide showed an activity decaying with a half period of 30 minutes. In spite of the inefficient geometrical arrangement of the beryllium in this experiment, we obtained from the active precipitate 200 impulses of the Geiger-Müller beta ray counter per minute. In the control experiment omitting the beryllium, we obtained less than 12

impulses per minute. The effect observed is sufficiently strong to be easily detected without separating chemically the radioactive element.

Our observations show that it will be possible to make experiments on induced radioactivity by using the gamma rays of sealed radium containers, which are available in many hospitals for therapeutic purposes. Further, it will be possible to have very much stronger sources of neutrons and to produce thereby larger quantities of radioactive elements by using X-rays from high-voltage electron tubes.

Leo Szilard.
T. A. Chalmers.

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Sept. 17.

Nature **134**, 237 Aug. 18, 1934. *Nature* **134**, 462 Sept. 22, 1934.

Liberation of Neutrons from Beryllium by X-Rays: Radioactivity Induced by Means of Electron Tubes

IT has been recently reported[1] that neutrons are liberated from beryllium by g-rays of radium and that these are able to induce radioactivity in iodine. Following up this work, we have attempted to liberate neutrons from beryllium by means of hard X-rays, produced by high-voltage electron tubes. An electron tube, which could conveniently be operated by a high-voltage impulse generator at several million volts[2], is at present in use in the High Tension Laboratory of the A.E.G. in Berlin, and has served in the present experiment for the production of X-rays.

X-rays from a tungsten anticathode generated at a voltage above 1.5×10^6 v. were allowed to fall on beryllium. An organic bromine compound (bromoform) was exposed to the radiation of the beryllium and this compound was then sent by air from Berlin to London. Here, at St. Bartholomew's Hospital, after an isotopic separation[3] of the radio-bromine

from the ordinary bromine, a weak activity decaying with the six-hour period of radio-bromine was observed.

Afterwards, at a higher voltage, but still below 2×10^6 v., very much stronger activities were induced in bromine and were observed both in Berlin and London. Strong activities were observed in Berlin both in bromine and iodine (30 minutes half-life period) in co-operation with K. Philipp and O. Erbacher of the Kaiser Wilhelm Institute for Chemistry, the activity and its decay being easily measured by means of an electroscope. Recently, Fermi, Amaldi, Pontecorvo, Rasetti and Segrè discovered[4] that by surrounding the irradiated material with substances containing hydrogen the efficiency of activation of certain elements by neutron bombardment is greatly increased. Use was made of this effect in these experiments.

A very sharp increase of the induced activity with increasing voltage is to be expected if there is a more or less sharply defined upper limit of the wave-length at which the liberation of neutrons from beryllium begins. If there is such a critical wave-length, and if the voltage applied to the tube only slightly exceeds the corresponding critical voltage, a small fraction only of the total X-ray energy will be present in the form of radiation of sufficiently short wave-length; this fraction will then increase sharply with the excess voltage.

We wish to thank Prof. L. Meitner for her kind assistance in the Berlin experiments.

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WONDERFUL FUTURE FOR RADIUM
Ramsay's Experimentation Points to Divisibility of Physical Element

Dr. A. H. Bucherer, Professor of Physics in the University of Bonn, Germany, says that the people who are losing sleep worrying about the possible exhaustion of the world's coal supply and the gradual freezing up of everything, with people turning to icicles or setting out in airships for a planet where there is still some fire left, have no cause to worry. By the time coal gives out, if it ever does, radium will be doing all the work that fuel now does, and perhaps, accomplishing things that fuel cannot do.

Dr. Bucherer is qualified to speak with some degree of prophetic insight because he is devoting all his spare time to the investigation of radium, and he makes his prediction in the light of the wonderful discovery of Sir William Ramsay, the great English scientist, that radium will split up some things that had hitherto been believed non-divisible, and in the splitting, set loose a lot of energy that Dr, Bucherer thinks will one day be harnessed up and made to drive tractably. “The idea of elements,” the Professor says, “has been completely destroyed by Ramsay is discovery that copper, hitherto supposed to be an elemental substance, could be resolved by radium into two separate substances. Physicists hold the theory that all matter is slowly decomposing, but' in most cases so slowly that it is difficult to watch the decomposition. Ramsay used radium as an explosive, to dynamite copper into other things. It decomposes other substances so rapidly that it sets free a tremendous amount of energy. In this fact lies one great expectation of the scientific world.”

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Present day alternative energy researchers find hope in that, one day, energy will be obtained from the energy that runs the cosmos. In reality, this dream proves to be a lure to its followers, beyond the limits of

credibility. A quagmire of unsubstantiated hypotheses, so bottomless and unreal, that even the presented facts of newly conceived energy concepts are wholly inadequate, lacking justification, and incapable of throwing any light on the promise of inexpensive, abundant sources of energy. Nevertheless, we must continue to pursue energy alternatives impartially.

Nature was my best teacher. Within her classroom there are mineral samples that give out pure electrical energy. They are the radioactive rocks. If radioactive matter from these rocks derives its energy elsewhere, this must be of a type entirely different from any that is presently known, for it must be capable of penetrating, without loss, hundreds of feet of solid rock.

Nikola Tesla’s investigations brought him to the conclusion that the earth was being showered with "small particles, each carrying so small a charge that we are justified in calling them neutrons." He stated that "they move with great velocity, exceeding that of light."

Thomas Henry Moray called into existence a new kind of unlimited radioionic energy (the cosmic ray), permeating all space and all matter, unimpeded. Such a view, at first glimpse, makes perfect sense with the continuous and permanent activity of radium extracted from certain rocks for an indefinite time. There is no reason why radioactivity, however intense and powerful, should decay or diminish with the passage of time.

At some point in my own research I had to ask myself two important questions:

1) Is there anything opposed, either to reason or to probability, in the view that the energy evolved from radium is actually derived from an existing previously unsuspected internal process within the atom, and 2) within this process the element experiences a transformation into other elements? How it is that such enormous store of energy in matter have remained so long unknown?

In my experience, a specimen of radium chloride is dissolved in water and the liquid is then evaporated. Bringing this compound back to its dry state, it is found that, as the result of this very simple operation, the radium has

lost the greater part of its radioactivity in the process. The penetrating beta and gamma rays completely disappear. The remaining non-penetrating alpha rays will be only one quarter as powerful as they were initially. Then a strange thing happens. Left alone, the radium will spontaneously recover its lost activity. Little by little, day by day, until at the end of a month, it will be no less active than it was before it went into solution. This appears to be in direct conflict with the zealous statement that “radioactivity of radium cannot be affected by any known process.” If we study this experiment carefully we will find that when radium chloride is dissolved in water something escapes into the air, and this "something" is intensely radioactive. It diffuses in the air, but remains contained within a gas-tight closed vessel. In short, this “something” is a gas possessing the property of radioactivity to a very intense degree. This gas was called “emanation” in days of old, being expelled from the decay of **Radium-226**. Today this gas is called **Radon-222**. It has a half-life of around 3.8 days. This radon gas is highly radioactive.

Uranium-238 decays into **Radium-226** releasing **Radon-222**, the most intensely radioactive, having a half-life of only 3.8 days.

Thorium-232 decays to **Radium-224** releasing **Radon-220** that is intensely radioactive, and has a half-life of around 55.6 seconds.

Uranium-235 decays into **Radium-223** releasing **Radon-219**, the most intensely radioactive, having a half-life of only 3.96 seconds.

Radon that has been separated from its parent source will rapidly decay. It is easy enough to conclude from this experiment that energy is in fact stored within the radium atom, accounting for comparatively rapid decay of the activity of the generated radon gas. This gas is depleting its internal store of energy so rapidly that it is soon exhausted. On the other hand how is the gradual recovery of the radioactivity of the parent radium explained? This question is the golden key to unlocking the secret of its power.

If it is true that energy comes from within, as large as the store of energy within the atom must be to explain its radioactivity, then it cannot be infinite. Therefore it is expected that the activity will slowly decay with the passing

of time. If two radioactive bodies, one much more radioactive than the other, are compared together, it is to be expected that the activity of the more powerful body will decay faster than that of the other. A time will come for both of these substances, when the internal stores of energy are exhausted, at which time the radioactivity will come to an end. Therefore, radium, the substance containing the store of energy, can no longer be radium when the energy is lost. Coal is not coal after it is burnt. When energy is obtained from matter, it transforms matter. Before it can be regained in its former state, the energy evolved must be put back. In no case is it possible for matter to part with its store of energy and remain the same, otherwise you would quickly realize perpetual motion could be easily constructed.

We conclude that, if the energy is stored up in the radium, it must be within the atom. Therefore, if radium changes, it must be a change of the atom and of the element itself. This change would be its ultra-chemical reaction, which is a more fundamental and deep-seated change than the normal chemistry or any known kind of material change. Until the discovery of radioactivity, such changes certainly had never been observed. If the energy of radium comes from within, then radium must be subjected to this ultra-chemistry that has eluded the chemist. Once this process of ultra-chemistry is understood as a special extension of chemistry, instead of some vaguely possible transcendental nuclear condition in the sun and stars, the answers will become as sure as the nose on your face.

Imagine that a month has passed. The radium chloride is once again dissolved in water and evaporated down to dryness exactly as before. Once more you will find in the process the radium has lost the same large proportion of its radioactivity, and again gains a new amount of radon gas no less than before it went into solution. Repeat this experiment as often as you like and you will find the result always the same. As the radon you separate from the radium is decaying away from day to day, the radium will generate a spontaneous fresh batch. If we are going to make any sense of this we have to answer the nagging question; "from where does the energy of radium come?" Does it come from nowhere, or is it being newly created

out of nothing? This is a view that it is not acceptable for a healthy twenty-first-century physical science.

If our doctrines of energy are true, then there are only two possible answers to consider. Either the energy must be derived from within the radium, or it must be supplied from elsewhere. This simple narrowing down of all the possible answers may appear to you somewhat simplistic but in reality it carries with it far more than appears on the surface. Being a minute property of the element, radioactivity is therefore a property of the atom, and if we say that the energy comes from within, this means that there must exist an enormous and not previously suspected store of energy in matter, or at least in the form of radioactive matter.

Dr. Thomas Henry Moray often advanced the theory that radium acts merely as a transforming mechanism, that it converts the cosmic ray into electrical particles. He states that it retransmits energy in a form that we recognize. Tesla also entertained this view. There are electrical transformers dotted all over our country receiving transmitted but dangerous high-tension currents from the central power station and delivering comparatively safe low tension currents to your house. Are the atoms of radium acting as the transformers of a mysterious and unknown source of external energy, first receiving it and then delivering it up again in a form that can be recognized? It may be said at once that so vague a view, postulating the existence of limitless and mysterious supplies of omnipresent energy cannot be directly disproved. One thing is for certain; it provides a way of escape from some of the more distasteful "logical" assertions, that ALL forms of energy are stored within the atoms and molecules.

If radium owes its activity to an energy source outside itself, one has only to isolate the external source. We have seen that to quench radioactivity or to modify it in any way is one of the things mainstream science cannot do.

Experiment has proven that even in its natural state in the mine, hundreds of feet deep down in the earth, pitchblende exhibits its normal radioactivity. Over 100 years ago, scientists concluded that some sort of radiation must

exist in the atmosphere because under all circumstances air is found to be positively ionized slightly (atoms minus an electron). The fact that this radiation is constantly much stronger at high altitudes than at the earth's surface leads us to conclude that such radiation does not originate on this planet but rather from somewhere in the outer regions of space. The fact that the intensity of this radiation does not increase during daylight hours eliminates the sun as its source. Also, the intensity does not decrease during the day or increase by night, therefore they cannot be a result of any particular group of stars.

Spontaneous Decay

Does not the "free emanating" state of a salt of radium teach anything about its decay mechanism? Results obtained by Dr. Alois Gaschler and Otto Hahn in the 1920s proved conclusively that when radium becomes finely divided (opened domains) it most readily emits radon. This teaches us that radioactive change is affected by confinement. How many scientists have paid attention to this all-important lesson? Is it actually the true mechanism that is behind what is being called "fission?" It is my hypothesis that the seat of radioactivity is due to radon gas trapped within the lattice of certain heavy metals. The best comparison that I can think of is coal and the stored hydrogen gas within its lattice. When coal reacts with oxygen it is transformed into CO_2 and it is expelled, releasing its stored reserve of hydrogen. Pretty much the same principle occurs when radon gas is released from its heavy metal prison. The reactant in this later case is a neutron from a previous radon gas emission. Radon reacts with a metal losing a neutron to it, and releases a free neutron in the reaction. When this occurs the radon becomes highly unstable emitting alpha particles, and rapidly transforms into stable lead. From this reaction we can see that radon is not as inert as we were lead to believe. In fact, <u>it is at the very foundation of nuclear reactions</u>.

Since the discovery of radium by Madame Curie the fundamental method of its extraction has not changed. The process utilizes the same methods that were instituted by Madame Curie and M. Debierne. Radioactive ores are first treated with a warm solution of hydrochloric acid that dissolves the

metals. The addition of sulfuric acid precipitates the insoluble barite's that are always present, carrying along with them all the radium as barium sulfate. It is necessary that barium is present in the process; if the mineral itself does not contain a sufficient quantity then some barium has to be added. It is said that the barium acts as a "carrier" to the radium. Can there be any other explanation? It never made much sense to me why the radium would not precipitate out without the barium. I simply could not accept the notion that it acted as the carrier. The answer to this problem comes relatively simple if you let nature be your teacher and forget what the textbooks tell you. We know from her lessons that radiation can be induced into non-radioactive elements, do we not? Could it be then, that something in the separated hydrochloric solution that is transforming the barium into what we call radium? Ala-ka-zam… low and behold… there sure is… it is called URANIUM-235.

Synthetic Radium

Radium may be synthetically manufactured by fusing dry uranium nitrate mixed with about 0.5% of dry barium nitrate. This is done in the heat of an electric arc. The mass is then treated with nitric acid, water, and sulfuric acid, successively. Radioactive barium sulfate possessing all the physical properties of the **"**element**"** discovered by Madame Curie is obtained by this formula. This material will emit ultra-violet rays, x-rays, excite phosphor screens, and cause air to conduct electricity. The chloride and the carbonate of radium may also be created by using uranium chloride or uranium carbonate respectively, and will have the same properties.

Uranium nitrate typically contains about 0.72 per cent U-235. The barium reacts with the U-235 creating pure radium. Take note here that this is an ultra-chemical reaction and that the barium is not a carrier as has been believed. Best results are obtained when 0.72 per cent barium is added, being equal or less than the amount of U-235 contained in the nitrate. If sulfuric acid is added after the reaction takes place then radium sulfate is precipitated. This material can now be filtered for removal from the solution. The synthetically created radium radioisotope results when barium reacts with RADON-219. It **cannot** come into being otherwise.

All other radioisotopes may be called into existence by this process using U-235 as the parent source. Radioisotopes procured by this ultra-chemical process will have far reaching ramifications if and when this process is taken under the wing of mainstream science. Radioisotopes could be made to order literally in a jar. These findings indicate that all radioactive substances originate from the U-235 atom. Now the question arises; where did the U-235 atom originate? I can only speculate at this point that it is created when a cosmic ray hits a stable U-238 atom head-on. If my conclusions turn out to be correct, then the energy stored in radioionic matter is a product of an external cosmic force. It is also due to the internal workings of the radioionic elements, without contradiction.

Clean Nuclear Reactors

Mother Nature offers us a clean nuclear process to supply the world with energy. My reasoning is based upon her process that leaves behind a clean, non-toxic ash. You have seen it in children's balloons at birthday parties. The inert gas that I am referring to here is called "helium." When I shine ultraviolet light onto a radioactive ore this gas fluoresces a lime-green. The only ash left behind by nature's process is what is seen under the ultraviolet lamp. There are no deadly radio toxins like the ones found in the commercial reactor. It makes all the difference in creation how the reaction is carried out, and for what purpose. I will also tell you that eating radium, like the women did who painted the glow-in-the-dark watch and clock dials, will give you serious health problems. A little common sense does go a long way.

The commercial nuclear reactor releases excessive amounts of neutrons. This is a direct result of the reaction of RADON-219 with the zircalloy fuel rod casing. It is highly likely that we can design reactors that will release only pure electrical particles in place of the toxic radioisotopes created by stray neutrons. Why not build clean reactors that do not generate excessive neutron release? Maybe it is because this is not presently perceived by mainstream science? Knowing the true facts makes it a relatively simple matter to acquire a cleaner burning reaction. The only major modification in reactor design is to find a more suitable fuel rod casing. Eliminate the excess neutrons and you will have a clean burn.

Radioionic Energy Converter

The power of the Moray detector came from the "fission material" that it contained. Instead of generating excess neutrons and heat it generated radio noise. An internal diode rectified the noise and charged a high-voltage capacitor. The capacitor was slowly dumped into a high-frequency tank circuit with special oscillator tubes. This high-frequency, high-voltage was then stepped down to a useable voltage, to power electrical loads.

The conversion device presented at public tests did not contain radioactive materials for obvious reasons. However, the test condition that Nikola Tesla presented in his radioionic energy patent is used instead for a more than adequate demonstration. I have used star-mode electrodes in the past to

slowly discharge the capacitors in the prototype device. An advanced discharge system is now being utilized based on a glow wire discharge. This is based on effects that I first observed back in 1982. In 1995, I discovered valve circuits, which I have used in recent prototypes. Even though these public tests do not contain radioactive material the basic principles still remain. In fact, it was necessary to validate radioionic energy, which directly leads to my advanced fuel cell designs. These fuel cells are sure to be a leader in the marketplace.

My presentations clearly demonstrate that this device does what is claimed. Yes, the key power source within the radioionic energy detector is rare and is expensive. The true mechanism of nuclear reactions opens “nu” pathways to a practical source of energy. A truly clean, safe nuclear process is on the horizon. Nature’s way is to leave behind chemically inert helium as a by-product.

Funding has not permitted me to build a device that can power a home or electric car. However, my prototypes have proven beyond doubt that, with the proper funding, this can be accomplished. It is my hope, with the publication of my findings, that funding will be forthcoming. At this point in time it is most important that credit for my findings be given, and that my work will not fall on deaf ears.

The Purpose for Public Testing

Demonstrations of my findings are given to validate the technologies. Evaluation sheets are given to all those who attend the test demonstrations of the prototypes. The evaluation sheets are used to critique the prototypes, and bring them a step closer to a "consumer-ready" product. These demonstrations are deemed as research & development tests. Proprietary details will not be shown. This is to preserve the integrity of future patent applications that may be filed.

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