

NATURE OF RADIATION

By

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OPENING:

The true nature and how it is able to be produced of Radiation has never been satisfactorily explained. J. C. Maxwell proposed and supposedly explained it was an electromagnetic wave, but his work was and is known to be faulty. It was extended by O. Heaviside and H. Hertz, further added onto and so remains to this day. In order to account for Radiation there must be a full explanation as to its primary sources that all result in the identical wave nature. It is the purpose of this discourse to show that the vast majority of the current beliefs were false and thereby the present beliefs on Radiation. The critical facts are from the author's works (full proofs, equations and results) and some of the facts used are presently known, but not necessarily to the current scientific establishment. Once the pieces were assembled then led to the most logical possible nature of Radiation.

The concept of fields (lines) will be used though, excluding the dimension of length, they have no parameters or properties and are considered as the carrier that carries the communication signal between the appropriate forces, i.e., the effect at a length that can cause an action *if permitted*, from the source on another **like source**.

1: FACTS:

#1: All energy is Radiation from its beginning to its end, **limits** and has quantum values.

#2: All Radiation has an intrinsic mass.

#3: There are only three forces, gravity, electric, and magnetic.

#4: None of the forces have any effect on the others.

#5: Radiation when being produced or created can have its parameters effected by an external electric, magnetic, or gravitational field.

#6: Once produced, the Radiation is not effected by any external electric or magnetic field.

#7: Once produced the Radiation can be **bent at right angles** by an exterior gravitational field if it is of sufficient strength to do so. Therefore, since mass, the source of gravity can only have an effect on another mass the gravitation pull, then there must be that of #2. See NOTE {1] A:

#7A: Radiation traveling long lengths depending on its frequency, slows down due to the gravitational drag of the gravity field that permeates space, i.e., tired light. (proof later).

#8: Planck's Constant exists and is the quantum of energy that permits a quantum of action.

#9: The magnetic field can only exist having the same parameters and has two distinct, never one by itself, field effects, hence, is said to have N and S pole(s) that coexist at all times.

#10: The electric field has two separate sources that are named negative and positive charge and can exist independent of one another, never together in one entity.

#11: Excluding particles, there is no such thing as a positively charged surface (area).

#12: What is called a positively charged surface is due to the difference of the quantities of the electrons between the two surfaces. The one with the excess or greater (relative mathematically or physically) is then said to be negatively charged.

The other surface is charged by induction. It is said to have a positive charge as it has a lesser (relative mathematically or physically) difference of electrons. Therefore, there is only the APPARENT positive charge EFFECT.

#13: The gravitational force only acts in one direction; the inward, pull, between two (or more understood) masses.

#14: ***The speed of propagation of any of the three fields is unknown nor has been measured*** and there is/are no fundamental theories that can predict said propagation speed.

#15: The de Broglie wave (it is not a wave and is misnamed) exists and is the carrier of what is called kinetic energy. It is a sphere surrounding all moving masses whose **wavelength is its circumference**, a boundary. What is inside it is not known but can now be speculated on as will be for later. When a particle proceeds to go from its lowest attainable speed (temperature) to a larger speed, the wavelength shrinks and stores that kinetic energy inside that smaller sphere, i.e., like compressing a spring. When the particle **decelerates**, the wavelength expands, like that spring and then releases the stored potential/kinetic energy.

#16: The neutrino is the **quantum** of mass and is the source of mass and the source of gravity, gravitational pull quantum value effect, that is SINGULAR!

#17: There is no electric field surrounding a conductor when it has a current flow (electrons only).

#18: The charge of the electron that is flowing through a conductor has no bearing on the parameters and properties of the effect of the flow of electrons, i.e., it is either null or neutralized and does not have an electric field extending from it.

#19: There is a magnetic field that surrounds a conductor when it has a current flow (electrons only).

#20: **The electron flowing through a conductor has its N pole leading with the S pole trailing.** It cannot flow with the *poles at right angles to its linear path*.

#21: No radiation is produced from an accelerating mass, i.e., only when it is decelerating.

#22: All particles that have a speed when decelerating, produce Radiation.

#23: Charged particles that have a speed in space have both an electric and magnetic field.

#24: The free neutrino is a single cycle of Radiation having one h of energy, a frequency of one cyc/sec, whose wavelength is the numerical value of the length Radiation speeds in one second, and its speed is the maximum in free space that is called the speed of "light". All other frequencies moving in free space speed at **less** than the speed of light (symbol c). See NOTE [1] A: and section **3**: last paragraph.

#25: There is a beginning (quantum) to frequency/wavelength and an end (unattainable) to the frequency/wavelength.

#26: Each cycle of Radiation is a sphere whose diameter is its wavelength measured in any direction (diameter). A wavetrain is then to be considered as a string of these connected spheres (one to maximum permitted) that has a start and an end. Each cycle may have one Planck Constant or multiples of same in *whole numbers* of them depending on how it is produced. See NOTE [2]

#27: **The production of Radiation is recoilless, i.e., it violates Newton's Third Law of motion.** There is no counter-Radiation (anti-light) produced.

#28: The longest/maximum or limit to wavelength starting with the quanta, **goes down** in quantum jump lengths (whole numbers) and **sets the frequency** and therefore there are forbidden (nonexistent) frequencies.

2: SOURCES OF RADIATION:

There are two fundamental sources of Radiation. The first is from the loss of kinetic energy. The second is from the transformation of mass to energy.

The various names given to parts of the entire Radiation spectrum causes confusion and no specific point(s) at which one becomes the other or they overlap. Some are named for persons to further confound the situation. The properties of Radiation are immaterial here.

Due to the large number of sources of Radiation. Only a few will be given that should cover the major sources.

#1: Illustration: A simple electric circuit consisting of a battery, switch, and light bulb. When the switch is closed, electrons start to move from the battery through the conductor and through the light bulb that then reaches incandescence and gives off light. Since the electron moves from relative zero speed and have to accelerate, no radiation is given off. The electrons moving through the conductor causes heat that is Radiation (most forget that it is) and is normally once it leaves the conductor, it is in the infrared portion of the spectrum.

The electron's effects (resistance) causes the filament of the light bulb to give off a large range of Radiation (frequencies or wavelength) from infrared to ultraviolet. When the switch is opened, the moving electrons must decelerate and in so doing give off what are called radio frequencies. This must be so for the Laws of the Universe cannot be violated. Specifically, the conservation of mass/energy as one example.

#2: Radiation from quantum electron jumping of the electrons in the shell(s) of the atoms. This is normally called the Bohr Hydrogen Atom Theory. It is not well known that A. Einstein formulated the equation that shows the electron in order to lose its kinetic energy must do so in a *finite time* creating a *finite wavetrain length*. All of the values in this equation **must then be quantum in nature**. This was proved from experiments.

#3: Čerenkov Radiation that is produced by a charged particle moving at greater than its permitted speed (Refractive Index) through a medium. As it decelerates it produces a specific form of Radiation or gives its "fingerprint" so is easily identified from other Radiation.

#4: Synchrotron Radiation is that created when charged particles are bent into a "circle" and produce wavelengths from radio to Gamma Rays. The present explanation is false as it depends on the *nonexistent centripetal acceleration*. See any good dictionary as it does not exist.

#5: The transformation of mass such as when an electron and a positron meet up that results in two Gamma Rays or Radiation of very high frequency, opposite polarity, and a very short wavetrain length. That wavetrain has as never been measured and may be only one single cycle.

#6: The next is from radioactive decay. The neutral or no charge neutron is one of them as it ejects an electron and a free neutrino and becomes a proton.

#7: Radioactive decay or the isotopes of the elements' nucleus that produce infrared and Gamma Rays. Exact mechanism unknown, but hopefully might now be explained.

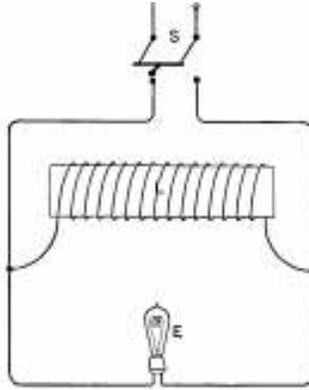
3: WHAT IS POSSIBLE:

For #1: from 1: #1, #2, #7, #25, #26, and #27 that will not be repeated again hereafter as they apply to all, #9, #15-#22.

As many have suspected, and were not listened to, there is NO ELECTRIC FIELD involved. Therefore, there can be **no wave given off with an electric component per Maxwell**.

From #9 that leaves *only the magnetic field*. Therefore, if there is any such wave, then it is possible that it is purely magnetic in character or there is that N field with the S field 90° out of phase. Furthermore, they stay within the sphere's boundary or inside that single cycle of Radiation. That is also a possible clue to #15 or what is inside the de Broglie wave sphere. The author's original works (qualified as possible not true) had two fields, one electric and one magnetic 90° out of phase inside it or "standing waves".

Now stop to think, as those others did. In this illustration there will be used since some are not aware of it, a coil of conductor connected to that battery, switch, and light bulb as shown. The coil can have an iron core, even better. This is used to show self-inductance. It is no longer shown in most current textbooks.



When the switch is closed, the direct current of the electrons (connection immaterial) flows at near the speed of light starting to set up that magnetic field in the coil. At first the light shines dim then the light bulb goes dark (depends on coil) and no radio waves are given off. When the switch is opened, the light bulb glows brightly due to the current reversal (sparks might go back and forth through the open switch contacts) and then reaches stability, zero current, and no more current flows anywhere in the circuit.. There are **no detectable electric fields** anywhere near the circuit **before, during, or after.**

But, a normal radio placed near this will give forth a burst of static showing that the collapsing (and oscillating, those sparks) magnetic field sets up a **magnetic wave** that induced a current, **flows in alternating opposite directions**, in the **radio's antenna that is a conductor.**

Though this was not in the listing for Radiation sources this circuit is a radio oscillator or LRC configuration. By adding into same another (additional over the natural) capacitor it can be made into a continuous radio frequency oscillator, details in any suitable reference.

Never the less, nothing is being communicated into space but a changing, **pole switching**, magnetic field of a WAVE nature that induces a corresponding changing and detectable magnetic field in another conductor or **detector** by said wave.

The author will stipulate that this radio wave is extremely weak, but such weak oscillating magnetic fields can be detected down to microwatts of energy input to the antennae. Even weaker wattage can now be detected, minutiae skipped.

Even back in the 1940's during World War II, it was prohibited, once it was found out, that using an electric razor aboard a ship sent forth a radio wave that could be detected and its source direction, and roughly the length away from a submarine that permitted the submarine to intercept the ship and sink it. That then included any motors or generators (unless properly shielded) that used a commutator, i.e., brushes.

Before the readers jump all over the author, just because a magnetic field is moving does not mean it creates Radiation. You could swing or rotate a common magnet such that its field intercepts a conductor and will create a flow of current in that conductor, especially if such is at right angles to the field cutting across it. However, depending on the strength of the magnet, it would not create a flow in the conductor when the conductor was any reasonable length from the magnet. The electrons in the conductor create the Radiation etc. Hence, moving the magnet's field does not create Radiation. Neither would such when its strength is reduced or increases, i.e., intensity. Heating a magnet causes its magnetic field to weaken and at a critical temperature, the magnetic field ceases to exist. No radio frequency radiation is given off. Neither would dissolving said magnet in a chemical solution give off radio frequencies, but it would or should give off *additional* infrared radiation, heat.

For #2 and #4, from 1: #15, #21-#23. the electron is not going in a circle, but in quantum jump lengths OR the path is an irregular polygon composed of **finite segments**. It is the bending at the segment (hinges) that requires a loss of energy, i.e., loss (decelerates)-gain back {accelerates}-loss again and repeats. For the Bohr electron jumping, it *spirals out* (NOT in as per current beliefs) and it is the length of said spiral from an inward orbit out to an outer orbit that determines said wavetrain length due to a *finite creation time*.

The energy loss (de Broglie again) must then causes more than one h to be in each cycle. That is and was Einstein's Equation results, though he did not know it at the time or anyone else, excluding the author, to date. See NOTE [2]

#3: from 1: #21 and #22, requires a short explanation. The Refractive Index of a medium is the ratio of the maximum speed of light to the speed of light in the medium **a function of frequency**. When charged particles, normally electrons due to radioactivity, enter the medium (normally water), the electron's speed is greater than the permitted speed of light in the medium. The electron must slow down and this produces that specific form of "light". Once it has reached the permitted light speed in the medium, the "light" production ceases. Any remaining kinetic energy results in the production of other Radiation, but mostly "heat". Again, the de Broglie wave is responsible.

#5: from 1: #15, #21, and #22 is the in between production as it involves both the kinetic energy and the mass potential energy. The kinetic energy loss is easily accounted for by the de Broglie wave. But, exactly **how the mass of the particles are transformed to Radiation** is not known.

It is #6 and #7 that create problems at the present time. From 1: #13, #16, and #24 that holds the secret. The present speculated so called Strong Force is gravity, #13 and #16 applies. The magnetic force is too weak inside a nucleus. The electric force only starts at the surface of the particle and is not inside the nucleus (includes the hydrogen nucleus that is a proton) and the neutron or any other neutral particle has no electric field to start with.

That **only leaves gravity** per #13. All mass that includes particles and nucleus or nuclei are composed of neutrinos. How they are inside the particles is unknown. But, there are no sub-particles per se composing the particle etc. The compound nuclei do not have individual protons and neutrons etc. All those particles from colliders etc. are created AFTER. When radioactivity occurs, the neutrinos inside CREATE the ejected particles. For the decay of the neutron, the number of neutrons composing an electron are removed and form the electron with its charge. One neutrino is the binding force or glue that permits the electron to be freed up, bond broken, and ejected with a speed, i.e., a Beta particle. Additional neutrinos (one h per each for the action to give the effect) then provide its speed and its **temperature**. Since the free neutrino is Radiation {RECOILLESS!}, it leaves first followed by the electron that does produce recoil.

Other radioactive decay of the elements can eject the nucleus of the helium atom called an Alpha Particle and Gamma Rays. These are all internal configurations of the neutrinos inside the mass. Likewise "heat" is created from the other neutrinos to Radiation.

At the sake of overkill, all systems attempt, some can, some cannot, to go to their lowest possible energy state or stable or also called ground state. How they do so is by the release of energy and ALL that energy is by and from Radiation. Simply, the END RESULT is the creation of Radiation.

Once created, Radiation can only be absorbed and reemitted by another mass. This is the generic discipline called thermodynamics or entropy, also called temperature.

There is no proof at the present time that Radiation can somehow transform itself back to a solid mass per se. Do not confuse this with electron pair production inside a nucleus when the energy of the incoming Radiation's energy is above 1.022 MeV as an electron's energy in electron volts is about .511 Mev. One single ray (current Photon) or even multiples of incoming Radiation of .511+ up to 1.022 MeV will *not result in any electron-positron pair being ejected*. In fact, it takes a much higher frequency as the kinetic energy of the ejected particles must be in addition to the "work function" just like for the Photoelectric Effect.

It is extremely important to note that the entropy OR total mass of the Universe did not change. The positron will eventually meet up with an electron and both will transform back to the total of the original energy transformed, and the free electron remains, i.e., one created, one destroyed. The Laws of the Universe cannot be violated.

As to 1. #7A: Measurements using nova etc. have now proved beyond any reasonable doubt, that the neutrinos arrive first since it travels at c , visible light second, and the X-rays much later. That is due to the **linear gravitational drag** on the Radiation that is a function of its frequency. No drag on the free neutrinos, greater on the visible light range, and larger on the higher frequencies. That is the **proof** of Tired Light per Zwicky.

4: MAGNETISM

It is not known now and probably forevermore what is gravity, magnetic, and electric. Therefore, it is not possible to make any claims and only speculations can be made. Only that of magnetism will be discussed here.

What causes problems is that humans can only observe things ex post facto. Simply, it is known that the electron and proton (and other equivalents) are actually a small magnet. Their magnetic fields extend into space. The neutron has a magnetic moment.

Elements under normal conditions, may or may not have any exterior magnetic fields surrounding them. ALL elements when subjected to a strong enough magnetic field will show magnetic properties, but that is an induced or ex post facto, effects. Then there is the existence of the magnetic fields when electrons flow through conductors. Lastly, those that are called magnets and have a permanent magnetic field that extends into space.

However, inside particles is another new “dimension” so to speak. It is possible and it must be so, that whatever creates magnetism, can have a limited field effect or it does not extend into space but is within a boundary. Therefore, those neutrinos inside creating gravity and mass must also be able to create the electric and magnetic fields. Gravity is automatic for all including Radiation.

That means, there must be at least three, maybe more, kinds/forms of neutrinos inside mass. Two (or however many required) of them create the two charges and two of them (or however many required) combine into one entity creating the always coexistent N and S magnetic poles and fields. The other created particles are then composed of the neutrinos in the required configuration, i.e., positron, antiproton, muons, pions or whatever.

5: RADIATION RAY

From 1. #26: Radiation is a ray that has a length, breadth, and width or is UNIDIRECTIONAL . It is not any spherical wave front. Each cycle is a sphere hence has a boundary whose diameter is its wavelength. Each cycle can have one or more h 's. No Ray can have a fractional of a sphere (hemisphere) or such are only created in whole numbers. A chain of touching (connected) spheres is called a WAVETRAIN. Inside this sphere is are the two magnetic fields, configuration unknown and probably will forever be unknown. A logical guess is the N and S (monopoles) move inward and outward from the center 180 degrees out of phase, i.e., spherical and anti-spherical waves one quantum length apart or similar to an onion and its layers.

Experiments by Larry Spring showed using TV signals that the signals were indeed spheres whose diameter was their wavelength.

The same then probably holds true for the interior of the de Broglie wave.

6: CONCLUSION

Though it is only speculation, from the known facts on Radiation and its behavior that was not discussed in any great detail here, it must be only a varying/oscillating magnetic field within a boundary that has an intrinsic mass.

NOTE:

[1]

A: The bending of Radiation by gravity is also a *function of the frequency* that is not considered in current theories on same. What applies to any frequency of radiation MUST apply to all and to what matter of DEGREE.

It is a known fact that red light travels faster than blue light through the same medium when permitted to do so. The speed of infrared in through many solid substances drops to mere mm/sec or less, i.e., through dry wood, cork etc. The Refractive Index can be almost $\times 10^{12}$ or greater.

B: There is created Radiation caused by a lightning strike(s) to the Earth that is called whistlers. You can read about them on the web.

#1: They are very low frequency from a few cycles per second (Hz) to about 10,000+cycles per second.

#2: They *appear to travel at different speeds depending on their frequency*. But that is because the higher frequencies are **produced first** followed by the lower frequencies.

Hence this makes a whistling noise or from high to low when converted to an audio signal (sound). This results in varying tones etc.

[2] Einstein's Equation, A21, is more noted for some of its resultants called Einstein Coefficients. It can be found, but NOT what it means on the web. The only correct source (original date of publication is apparently not known even in his archives) is in the book *LIGHT* by R. W. Ditchburn still available in print.

Even before Einstein, using a Michelson interferometer (1890's) it was found that the interferometer quit working when the arms' length exceeded the wavetrain length. For the yellow 5890 Angstrom line, the wavetrain length was about 480 cm and the emission time about 1.6×10^{-8} seconds. That means each cycle contains about 6.25×10^7 h's. And in 1913 experiments that the activation time (= emission time) for sodium was about that as given, i.e., less than 10^{-7} seconds an extremely remarkable achievement for that time.

All of this has long been CENSORED OUT of textbooks and references.

7: FINAL PROOFS:

The red words on page 4 are the final clues. When there is any stop (ceasing), like turning a flashlight off once on, of any electric current, there is the emission of that changing magnetic field. When the current flow is steady between same, there is no radiation from the circuit (LRC). There is yet one more that is long forgotten. The ratio of the e.m.u. to the e.s.u. was the **numerical value** of the speed of light.

To be extremely brief, when an **alternating current** flows through a conductor the electrons produce the changing strength magnetic field that is given off. There is NO electric field. **It is this oscillating magnetic field that INDUCES the electric current, flow of electrons, AFTERWARDS in another conductor that is detected.** Simply, an insulator will not work as an antenna (detector or part of said circuit) to detect radio frequencies, but as the material goes from insulator to semiconductor to conductor, more and more of the induced current can and will be detected.

Depending on the frequency and other parameters, the oscillating magnetic field when permitted can and does EFFECT the materials of other mass or their compounds. This then accounts for many of the various properties of Radiation. For brevity, the action on polarizing materials does then have an INDUCED electric component that is created in the material, but remember this is ex post facto.

Hence Radiation does not require just a conductor to be detected as such is a function of its frequency and the receiver/detector. **Minutiae obvious and skipped.**

There was in June 2006 an announcement that a strong magnetic field was capable of changing the polarization of produced light. First, it is impossible. What the experimenters did was to put the filters too close to the magnetic field and changed the filters properties, namely as one such, the Cotton-Mouton Effect. That effect changed the filters rotational properties and not due to, as claimed, any cause of changing the properties, polarization rotation, of the light used.

Revised June 2007