

How Gravity Works

How Gravity Works explains how Electricity and Magnetism work together to produce the force of Gravity and in so doing reveals the underlying science behind Newton's equation that he tried in vain to uncover—the reason why Gravity is proportional to the masses of two attracting objects, why it grows weaker in proportion to the square of the distance between them and the nature of the mysterious 'Gravitational constant' that continues to perplex researchers to this day. It explains why all objects accelerate to Earth at 32 feet per second, every second. It explains why the atom is comprised of 8 orbital shells and why the shells fill with electrons the way they do. It explains how permanent magnetism works, at atomic level, the nature of so-called 'Dark Matter', the reason why spiral galaxies are spiral shaped, why the centre of the earth is boiling hot and how the Earth's magnetic field is generated.

How the discoveries were made

Scientists cannot understand why the positive protons in the centre of atoms simply do not spring apart—their positive charges repelling each other. In 1935 a researcher named Yukawa suggested that another substance or particle must exist to 'glue' the protons together in the nucleus, a kind of atomic 'velcro'. But an objector to Yukawa pointed out that if indeed that were the case then there would have to be two types of velcro—a velvet-side and a hook-side (so to speak). But another researcher pointed out that protons covered in the velvet-side would not stick to other protons covered in the velvet-side, and that protons covered with the hook-side would not stick to other protons covered with the hook-side. So another researcher suggested that there must be three types of velcro. But then another researcher pointed out that for such a scheme to work there would have to be three types of each of the three types. Thus, the crazy field of Particle Physics was born. In the decades that followed Particle Physicists were granted billions of dollars to find out what made the atom stable. Since then they have been searching for more than 300 imaginary sub-atomic particles. The Concise (Oxford) Science Dictionary comments;

...the whole elaborate theory is circumstantial... none of the smaller particles have ever been identified in experiments... the theory does not claim to have been verified.

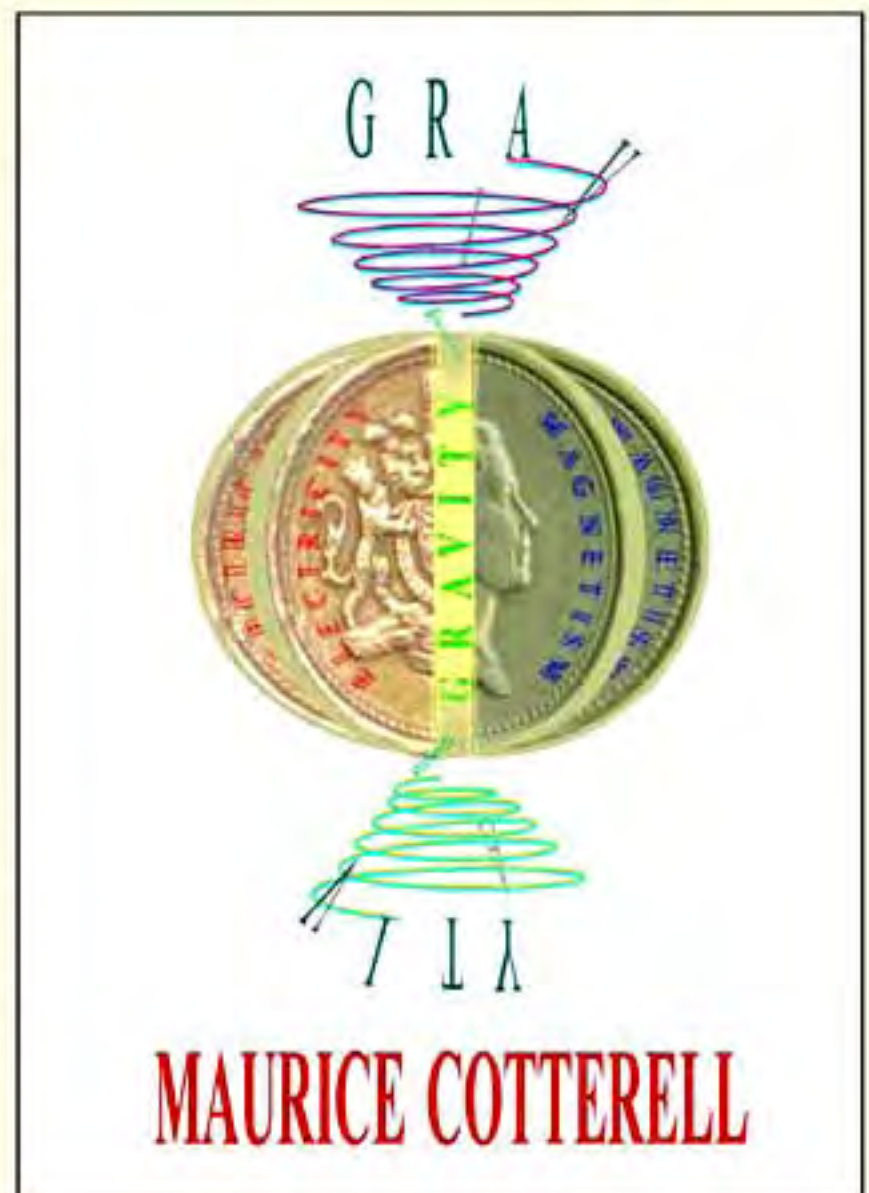
Cotterell shows that none of the particles actually exist and, more importantly, that none are necessary. To explain why the atom does not spring apart he returns to firm ground and to the pioneering work of Ernest Rutherford and James Chadwick of the 1930s and shows that by simply changing the perceived shape of the electron and the neutron the gravitational mechanism is exposed, explaining-away the mysteries of the atom and many of the cosmos.

This Paper is aimed at the general reader with no prior knowledge of science and uses many illustrations to convey the concepts simply and concisely.

Electricity

Gravity

Magnetism



...three sides of the same coin

How Gravity Works [and related matters]

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Abstract—How Gravity Works

This *explanation of the gravitational mechanism* provides a causal mechanism that reconciles physical phenomena with Newton's equation for the force of Gravity; it explains the reason why the gravitational force is proportional to the masses of the attracting bodies and why the force decreases in accordance with a square law scale. The Gravitational constant is defined. The reason why objects accelerate to Earth in accordance with a square law scale ($9.806 \text{ m [32 ft] s}^{-2}$) is explained. Construction of the atom is explained. The nature of so-called Dark Matter is explained. The reason why spiral galaxies are spiral shaped is explained. The reason why the Earth's core is red-hot is explained. The cause of permanent magnetism is explained and how the Earth's magnetic field is generated is explained.

Conclusion; [Gravity] The hydrogen atom and helium atom generate *helically polarised electromagnetic radiation* (gravity radiation) from polar regions that bombards neighbouring atoms drawing them towards the source of the radiation. Gravity radiation then causes the nucleus of the neighbouring atom to spin axially (the motor effect) and, at the same time, synchronizes the spin of the electrons in both atoms. The neighbouring atom, in turn, generates helically polarised electromagnetic energy (the generator effect). Both atoms spin axially in the same direction. Hence, the gravitational forces from both atoms pull in the same direction and the forces are additive. The gravitational constant G is shown to be the instantaneous alternating magnetic force between any two electron-magnets in neighbouring atoms and, hence, the gravitational force F is proportional to $G \times m \times M$ (where m and M represent the electron count of neighbouring atoms).

How Gravity Works: Summary (I)

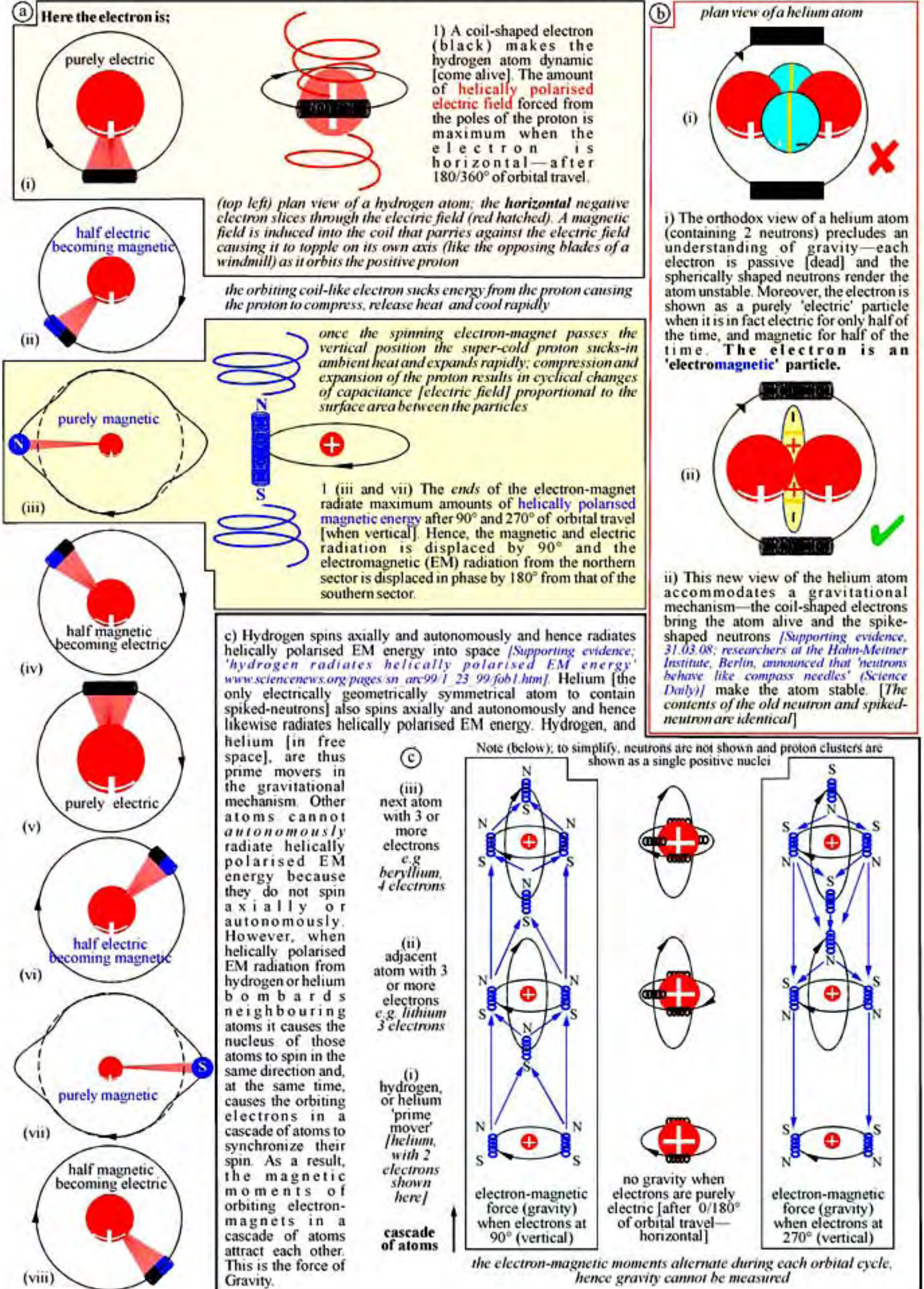
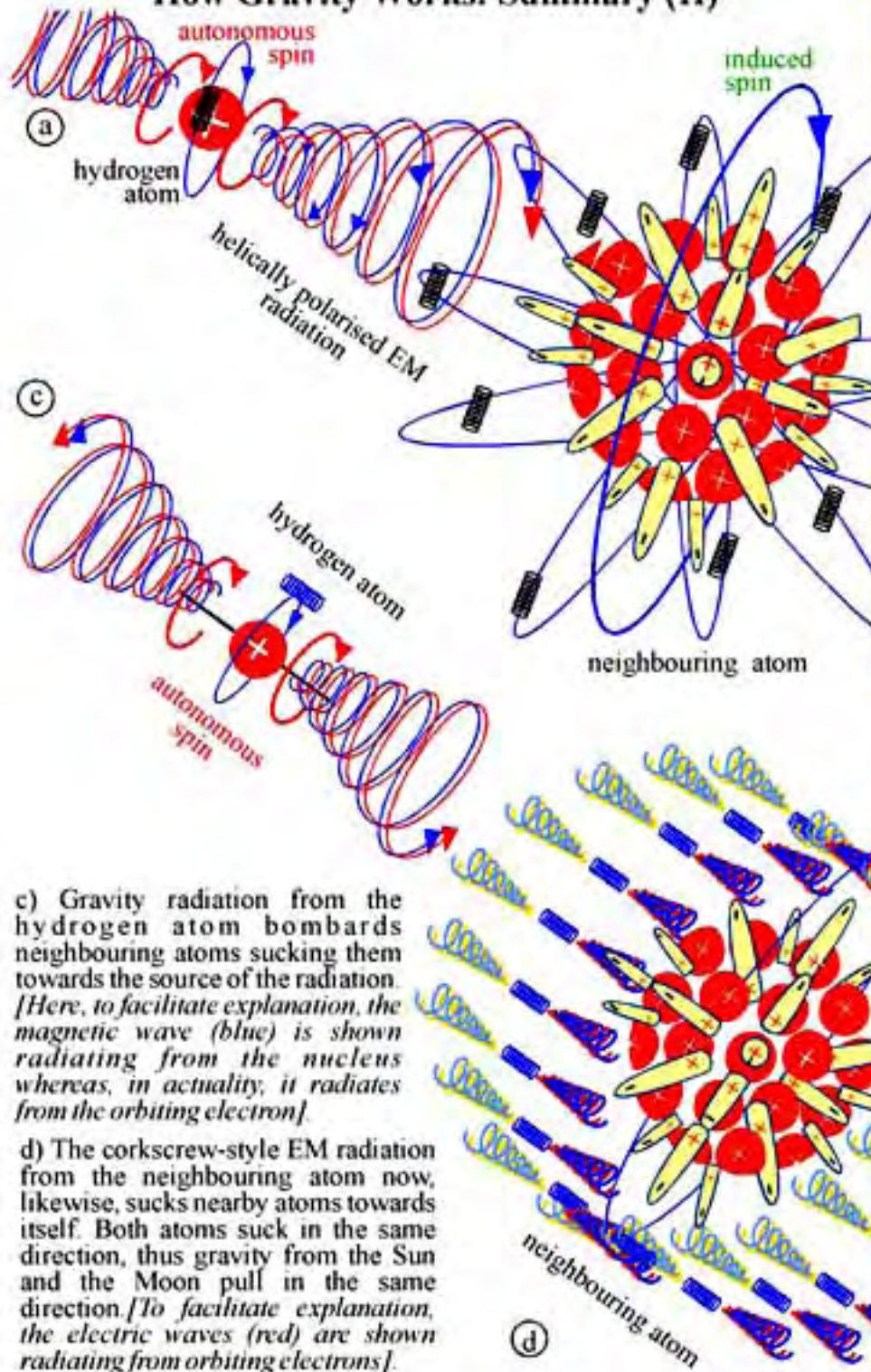


figure Si

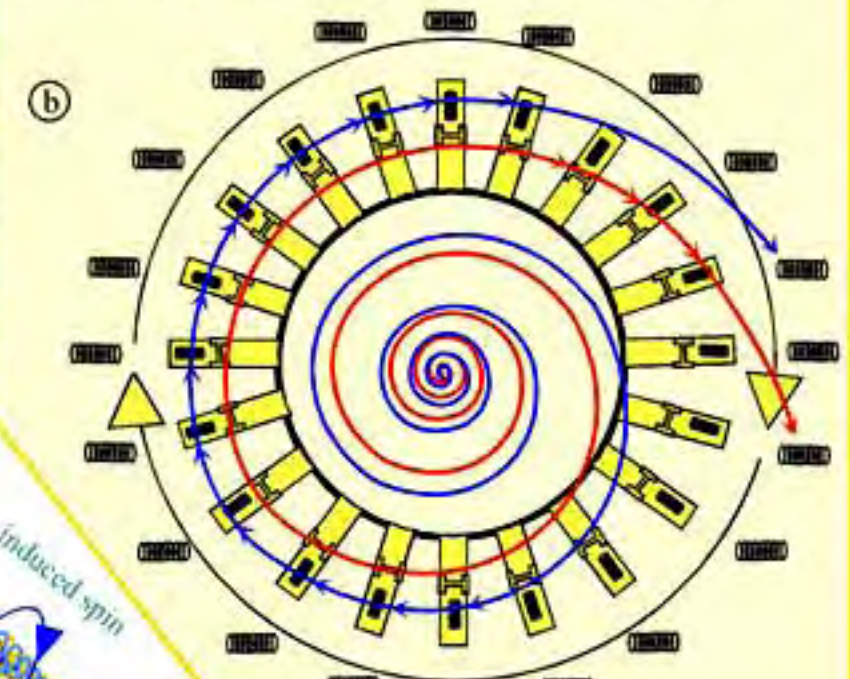
How Gravity Works: Summary (II)



a - b) The 'Motor Effect'; helically polarised EM radiation from the hydrogen atom acts upon the negative charges of the neighbouring atom causing the nucleus and the electron cage to spin axially and, at the same time, synchronizes the spin of the electrons in both atoms [Supporting evidence; Nature, 2009;458 (7238):610 DOI: 10.1038.nature07871 (persistent spin helix)]. The mass of the electron is twice that of the neutron-negative charge, hence the torque on the electron-cage is twice that on the neutron-negative charges in the nucleus. Thus, the electron-cage spins faster than the nucleus.

c) Gravity radiation from the hydrogen atom bombards neighbouring atoms sucking them towards the source of the radiation. [Here, to facilitate explanation, the magnetic wave (blue) is shown radiating from the nucleus whereas, in actuality, it radiates from the orbiting electron].

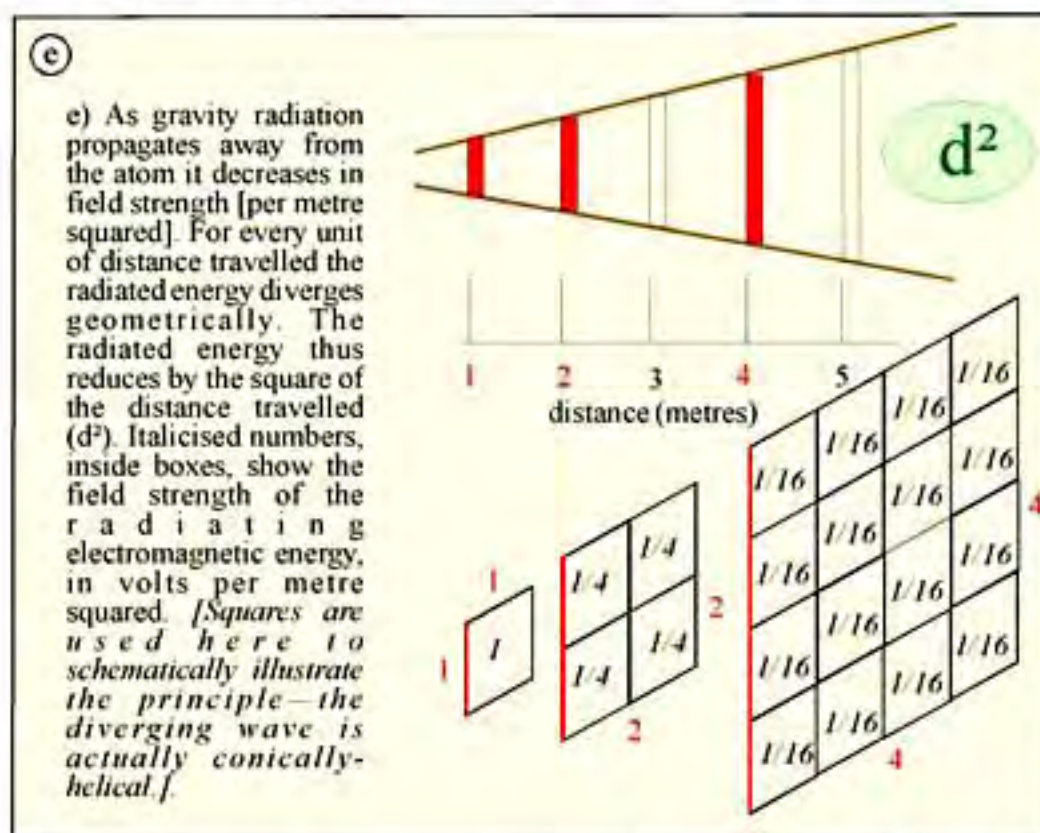
d) The corkscrew-style EM radiation from the neighbouring atom now, likewise, sucks nearby atoms towards itself. Both atoms suck in the same direction, thus gravity from the Sun and the Moon pull in the same direction. [To facilitate explanation, the electric waves (red) are shown radiating from orbiting electrons].



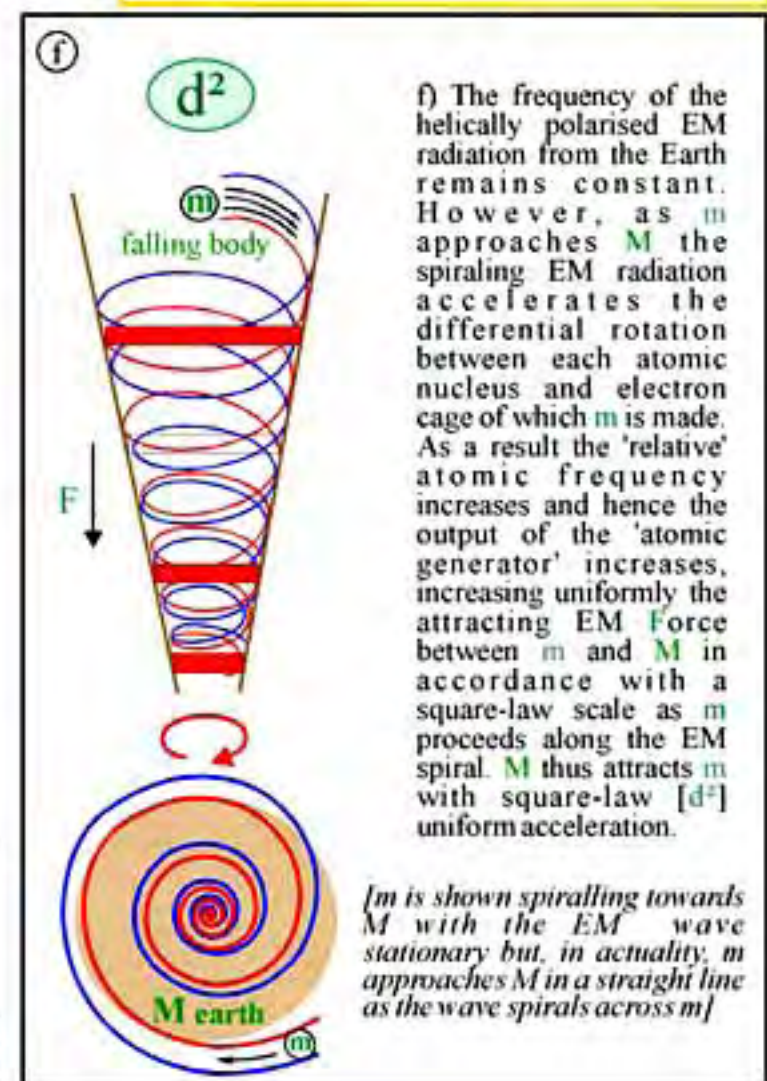
neighbouring calcium atom (containing 20 electrons, 20 protons and 20 spiked-neutrons) used here for purposes of illustration only

b) The 'Generator effect'; orbiting electrons in the neighbouring atom now 'generate' helically polarised EM radiation. The power output of the 'atomic generator' is proportional to the differential speed between the nucleus and electron cage and to the number of orbiting electrons (atomic mass).

electromagnetic output is a function of, the number of electrons [atomic mass] (g) AND to the differential speed between the nucleus and electron cage (f).



e) As gravity radiation propagates away from the atom it decreases in field strength [per metre squared]. For every unit of distance travelled the radiated energy diverges geometrically. The radiated energy thus reduces by the square of the distance travelled (d^2). Italicised numbers, inside boxes, show the field strength of the radiating electromagnetic energy, in volts per metre squared. [Squares are used here to schematically illustrate the principle—the diverging wave is actually conically-helical].



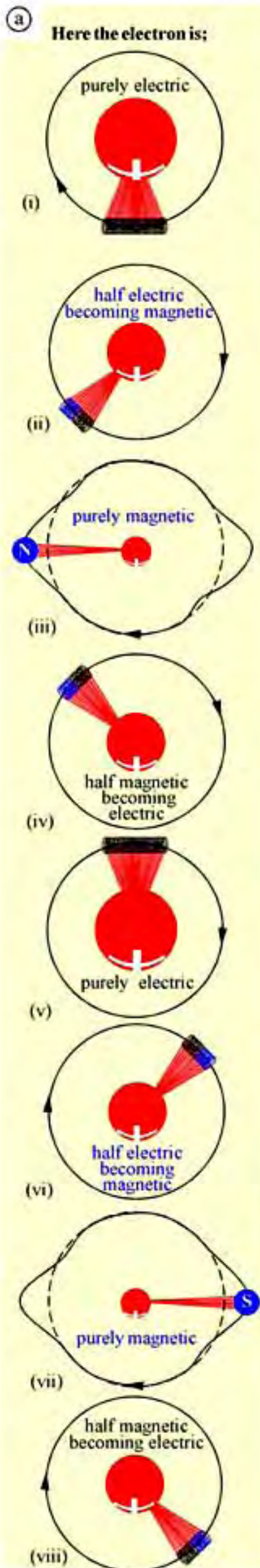
f) The frequency of the helically polarised EM radiation from the Earth remains constant. However, as m approaches M the spiraling EM radiation accelerates the differential rotation between each atomic nucleus and electron cage of which m is made. As a result the 'relative' atomic frequency increases and hence the output of the 'atomic generator' increases, increasing uniformly the attracting EM Force between m and M in accordance with a square-law scale as m proceeds along the EM spiral. M thus attracts m with square-law [d^2] uniform acceleration.

g) Hence Isaac Newton's equation for the force of gravity; where the force is proportional to the masses (m & M) of the two attracting bodies and the strength of the force decreases inversely with the square of the distance between them (d^2).

$$F = GmM/d^2$$

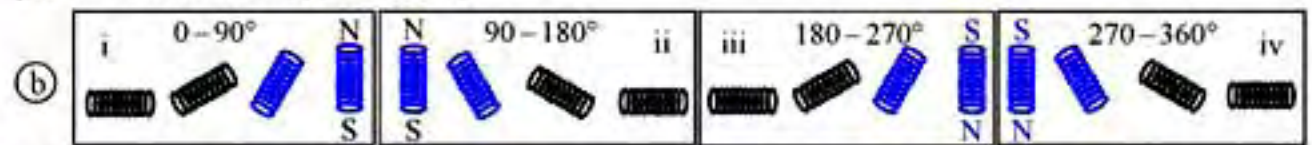
G is Newton's gravitational constant $6.672 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$
—the instantaneous alternating magnetic force between any two electron-magnets in neighbouring atoms.

[m is shown spiralling towards M with the EM wave stationary but, in actuality, m approaches M in a straight line as the wave spirals across m]

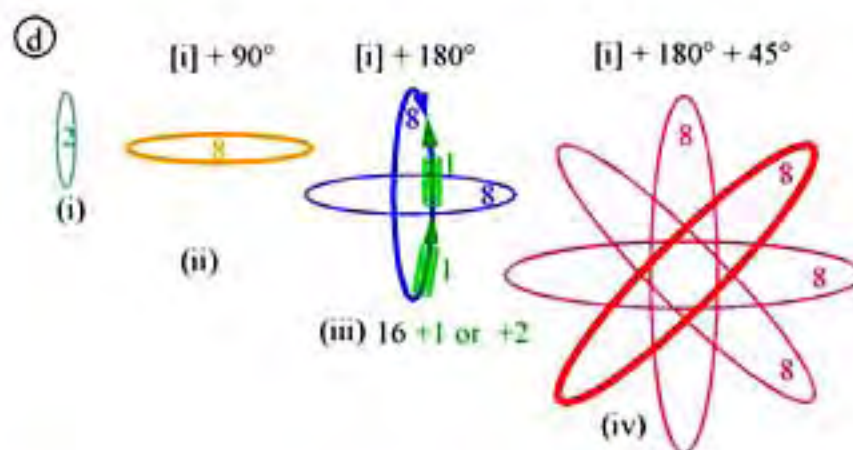
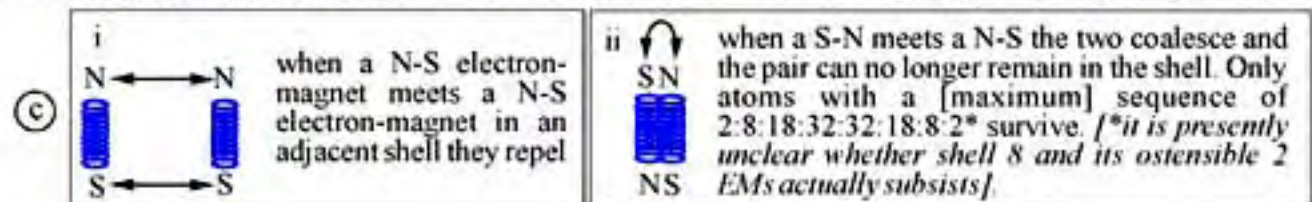


Electron-shell architecture Explained

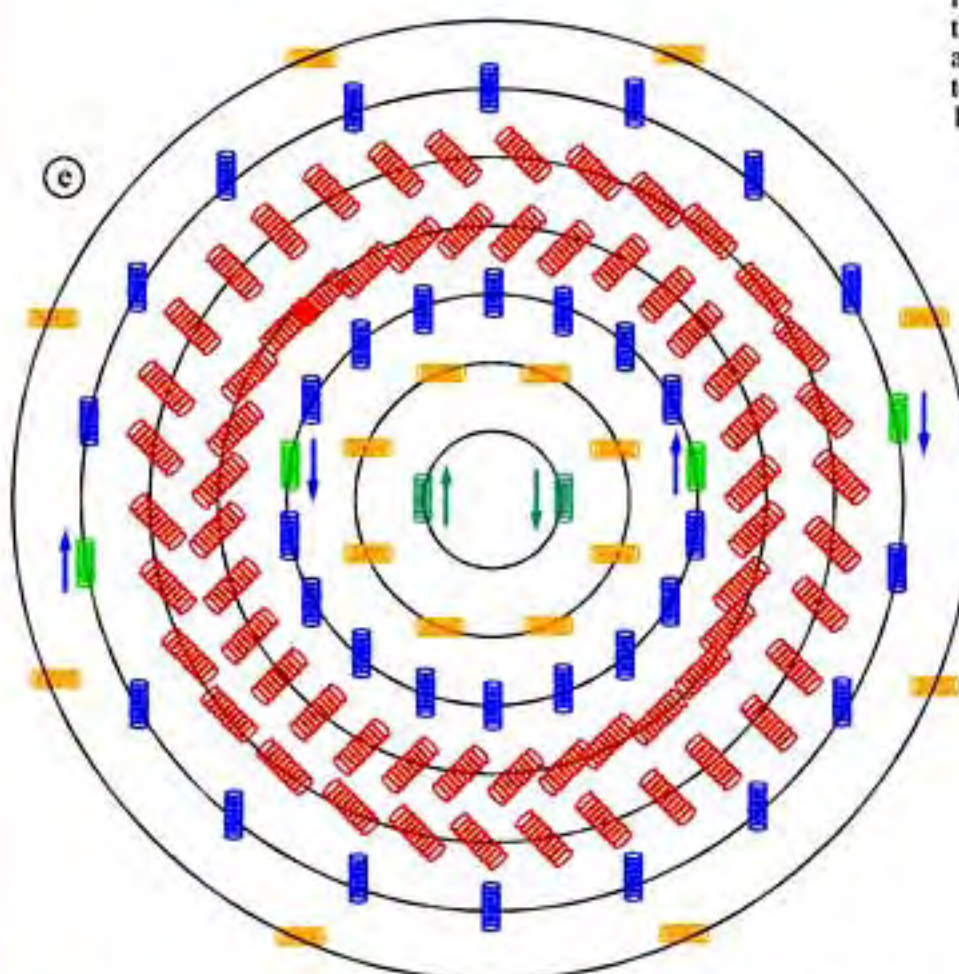
ai – viii show the azimuth of an electron-magnet (EM) as it orbits a hydrogen nucleus. When the EM is horizontal to its orbital plane it behaves as a purely electric particle and when it is vertical it behaves as a purely magnetic particle. bi – iv illustrate the electric – magnetic properties of the orbiting particle, and the electric – magnetic tipping point at 45° intervals. ci – ii show the electric – magnetic possibilities of two neighbouring electron-magnets (EMs); when a northsouth meets a northsouth the two repel each other and when a northsouth meets a southnorth the two attract, stick together, and exit the host shell. Hence, as subatomic particles accrete into atoms, EMs inside shells/subshells must be separated by at least 45° to avoid annihilation and EMs in one shell must be separated by at least 45° from those in adjacent shells. Hence the constraint of up to 8 EMs per shell/sub-shell [$8 \times 45^\circ = 360$] and the requirement for different shell/sub-shell planar orientations (see below).



bi) from $45^\circ - 90^\circ$ ($1/8$ of the time) the magnetic field of the EM rises. bii) from $90^\circ - 135^\circ$ it falls. biii – iv) the same thing happens between $225^\circ - 270^\circ$, and from $270^\circ - 315^\circ$, but with opposite magnetic polarity.



d) As a general rule orbital shells [or sub-shells of equidistant radii] cannot sustain more than 8 EMs because of considerations set down in ci – ii and, to avoid magnetic conflict between shells/subshells, the plane of successive shells/subshells must be progressively offset by at least 45° . However, shells 3 and 6 can sustain up to 2 more EMs in the scheme proposed in d) and e) because the magnetic moments from the 2 EMs in shell 1 (being equal and opposite to 2 EMs in shell 3) cancel, and magnetic moments from 2 EMs in shell 3 cancel those of 2 EMs in shell 6, allowing those shells/subshells to sustain up to 18, rather than 16, EMs.



here, to further illustrate the relationship between magnetic moments, EMs in successive shells are shown reorientated; in shell 2 by 90° , in shell 3 by a further 90° , in shell 4, by a further 45° , in shell 5 by a further 90° , in shell 6 by a further 45° and in shell 7 by a further 90° . It can be seen that no magnetic conflicts occur in such a scheme and that the 2 EMs in shell 1 (green) influence the magnetic moments of those in shells 3 and 6, so that those shells can sustain up to 2 more EMs (green) than generally possible. This defined structure confirms that the electron must be coil-shaped and that it behaves as an electromagnetic particle.

schematic only—EMs are actually synchronized by gravity waves and [instead] the inclination of each shell/sub-shell is offset as shown in (di – iv).

Proof that the Electron must be a coil-shaped Electron-magnet

Here, 'disc analysis' is used to show that three-dimensional atoms survive because each plane is shifted by at least 45° to its neighbour as the orbital plane shifts *within a sphere*. a) Shows an orbital plane spinning on an x-axis to produce segmental separation of 45° . This scheme ensures separation of 45° between orbiting particles vertically, but not horizontally. In the same way, b) shows the orbital plane spinning on the y-axis. This scheme ensures separation of 45° between orbiting particles horizontally, but not vertically. c) Shows the orbital plane spinning on the z-axis; note that the z-axis at times passes through the x-axis [a), red]. The same happens in b) where the z-axis passes through the y-axis [b), red]. z-axis, three-dimensional planar-spin, is the only configuration that embraces all three dimensions and so ensures that no magnetic conflicts subsist between spinning electron-magnets [where the requirement for separation is at least 45°]. Hence the de-facto construction of the atom [c); the z-spin characteristic] confirms that orbiting particles must be made of spinning electron-magnets where the magnetic moments of the orbiting particles—repulsion and attraction—result in self-separation of the orbiting particles by 45° in three dimensions.

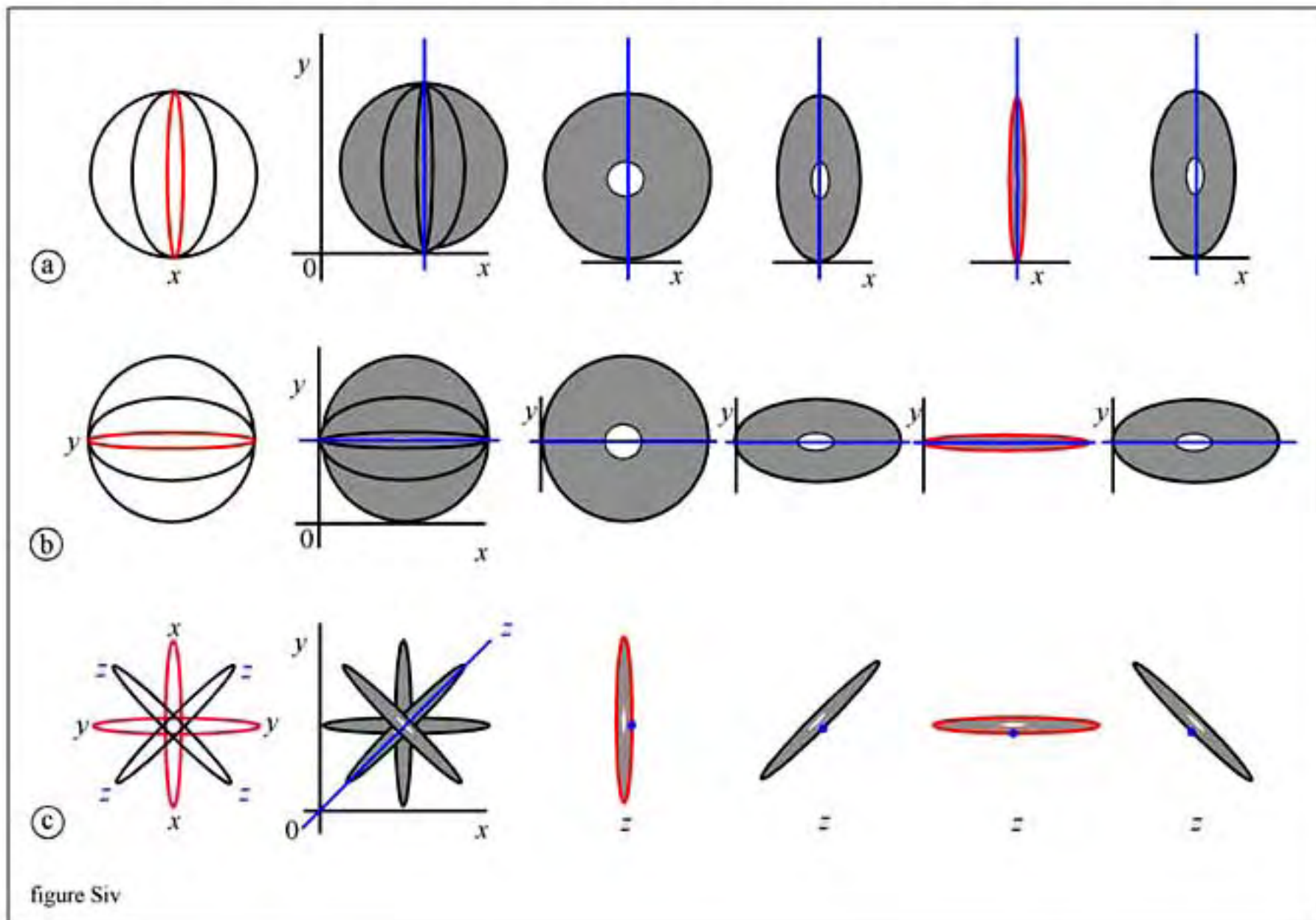


figure Siv

Introduction

A New Look at Electromagnetic Radiation

All atoms radiate electromagnetic energy. [Supporting evidence; on March 9th, 2008, the UK research establishment Rutherford Appleton Laboratory publicly announced that 'all atoms radiate electromagnetic energy' (Sunday Times)]. This explanation proposes that 'Atomic Radiation' differs from lower frequency man-made electromagnetic energy (radio waves) in that it propagates helically through space, figure i.

How Gravity Waves Propagate Helically

'Man-made' electromagnetic waves (radio waves) travel through space with the electric and magnetic components displaced by 90°. a) and b) The electric wave travels vertically and the magnetic wave travels horizontally away from the transmitting antenna. c) However, it is here proposed that 'atomic electromagnetic radiation', generated within a spinning atom, radiates helically. d) Shows the helically polarised electromagnetic waves that radiate from the hydrogen atom. When this radiation bombards neighbouring atoms the neighbouring atom is sucked towards the radiating atom, like water is drawn along the length of an Archimedes screw (e).

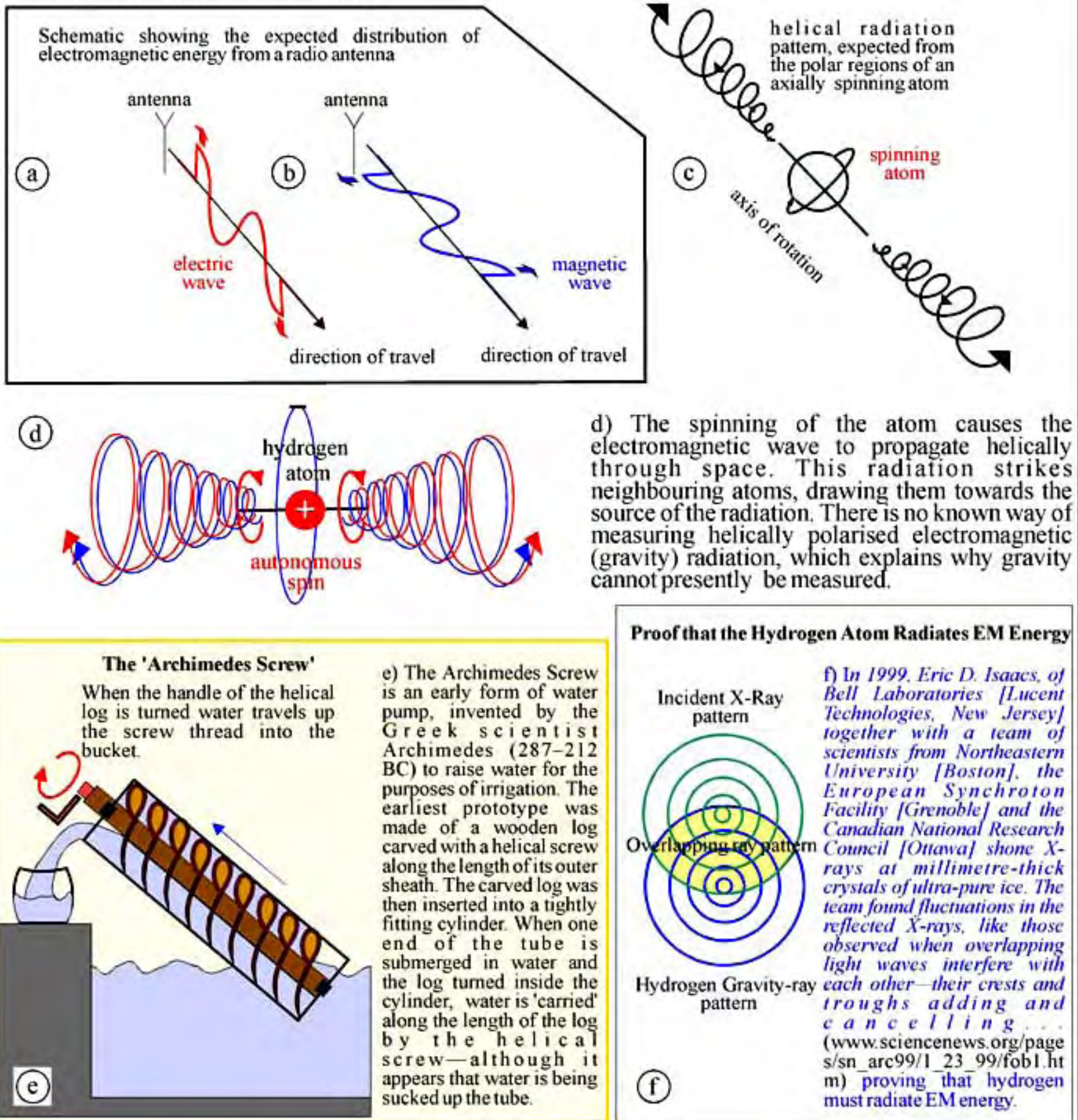



figure i.

A New Look At Matter

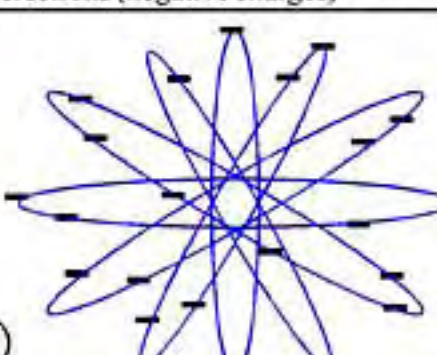
In the 1920s, when the Nobel Prize-winning physicist Ernest Rutherford set down his theory on atomic structure, it all seemed quite straightforward; the smallest bundle of matter was the 'atom' that was comprised of positive charges in the nucleus, which he called *protons*, and negative charges that orbited the nucleus, *electrons*. Different fundamental materials (elements) were distinguished by the numbers of protons and electrons, for example calcium was found to have 20 protons and 20 orbiting electrons which Rutherford illustrated like this, (figure ii);

Rutherford's early 'atomic nucleus' comprising of Protons (positive charges)



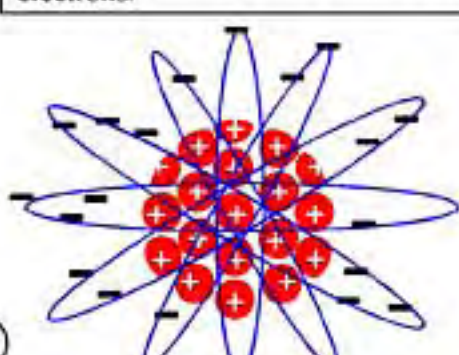
(a)

Rutherford's early 'atomic electron belt' comprising of orbiting electrons (negative charges) —



(b)

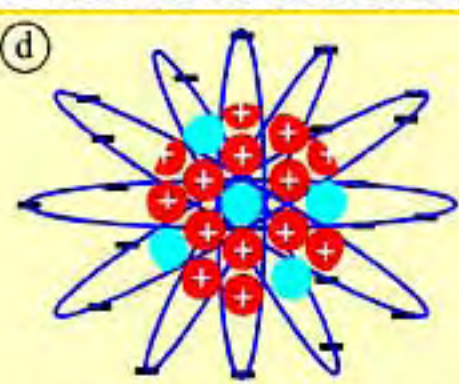
Rutherford's first attempt to describe the atom featured only protons and electrons.



(c)

But later experiments showed the weight of the nucleus to be twice as heavy as Rutherford had initially proposed. This meant that there had to be yet another undiscovered particle—one that had no electric charge—inside the nucleus. By 1932 the British Chemist James Chadwick had identified the missing particle and named it the '*neutron*', because it appeared to have no electrical charge. Rutherford redesigned his atom to include the missing neutrons. d) He found no problem in accommodating the electrically neutral neutron into his existing model and simply illustrated his new 'complete atom' showing the neutrons, like small billiard balls, inside the nucleus. This 'billiard-ball' perception of the neutron would in time be seen as the greatest scientific misconception of the twentieth-century, one that would deny the discovery of gravity for generations to come. Moreover, Rutherford's new model, accepted by science today, fails to explain why the negative electrons do not simply get sucked into the positive nucleus, thus annihilating the atom, or why the positive protons simply do not spring apart, their positive charges repelling each other.

(d)

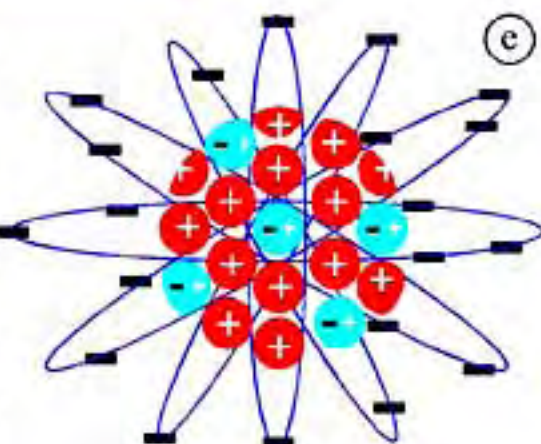


Construction of a theoretical Atom

Rutherford's early atom, a), depicted protons as billiard-ball style particles. d) shows an atom of, for example, Calcium, containing 20 positive protons (shown in red) and 20 negative electrons (black). The newly discovered electrically neutral neutrons (blue) were also shown using the same billiard-ball convention that had worked so well to illustrate protons. [Note: Calcium has 20 neutrons, not all are shown in this diagram].

Construction of the Neutron—the most undervalued discovery in the History of science

In the 1960s, experimenters using atomic particle accelerators smashed together 2 neutrons, as though they were boiled eggs, and were amazed to finish up with 2 positive particles, 2 negative particles and 2 particles that appeared to do nothing, *antineutrinos*; meaning that each neutron must consist of 3 particles—1 positive, 1 negative and 1 neutral antineutrino. But, they argued, "it didn't really matter anyway, because positive cancels out negative and therefore the neutron is still 'overall electrically neutral'". So they simply filled-in Rutherford's neutron billiard-ball with one positive charge and one negative charge and, in so doing, missed the chance to redefine the atom.



(e)

By the 1960s, the billiard-ball style neutrons were, catastrophically, in-filled to show one positive particle and one negative particle.

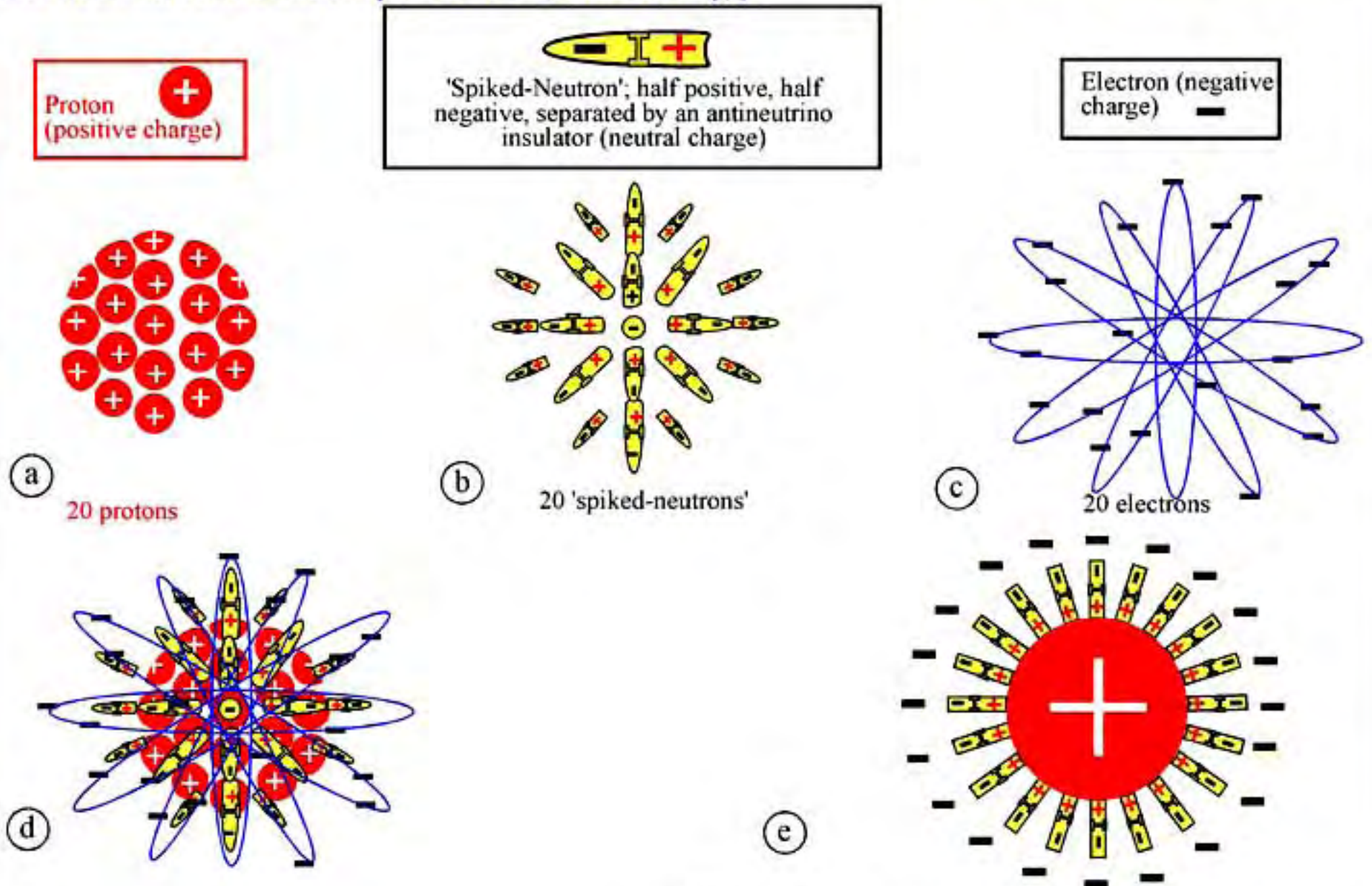
figure ii.

A New Atomic Theory

The discovery that the neutron is made of a positive particle, a negative particle and a neutral particle, allows us to go back to where Rutherford left off, redesign [*redefine*] the atom and answer the 'Rutherford Enigmas' of why the negative electrons do not simply get sucked into the positive nucleus, which would annihilate the atom, and why the positive protons simply do not spring apart. All this takes is a very simple change in the structure of the atom, one that will allow us to understand fully how gravity works;

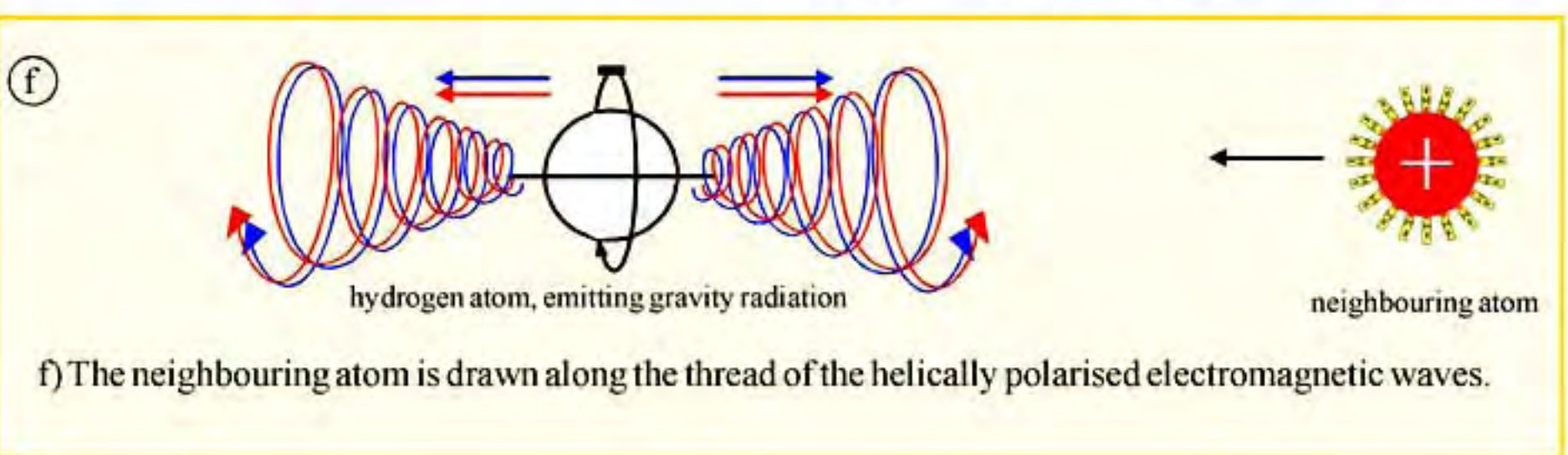
The New Atom

Consider a new structure to the atom as shown here. a), b) and c) The nucleus of the atom still contains protons and neutrons. Electrons still orbit the atom. The neutrons are still shown as polarised neutral particles, that is to say they are '*overall electrically neutral*' but instead of being shown like Rutherford's billiard balls are instead illustrated as spikes, long and thin, attached to the nucleus, d), like spikes on a chestnut shell. The spikes themselves are polarised, one end positive, one end negative. e) Now we can see (schematically) why the electrons do not crash into the atom, and why the protons in the nucleus do not spring apart; the spiked-neutrons act like springs, forcing the electrons out and forcing the protons in. [*Supporting evidence; on March 31st, 2008, researchers at the Hahn-Meitner Institute, Berlin, announced that 'neutrons behave like compass needles'*(*Science Daily*)].



The new atom: 20 protons, 20 'spiked-neutrons', 20 electrons
[*Calcium, used for illustration purposes only*]

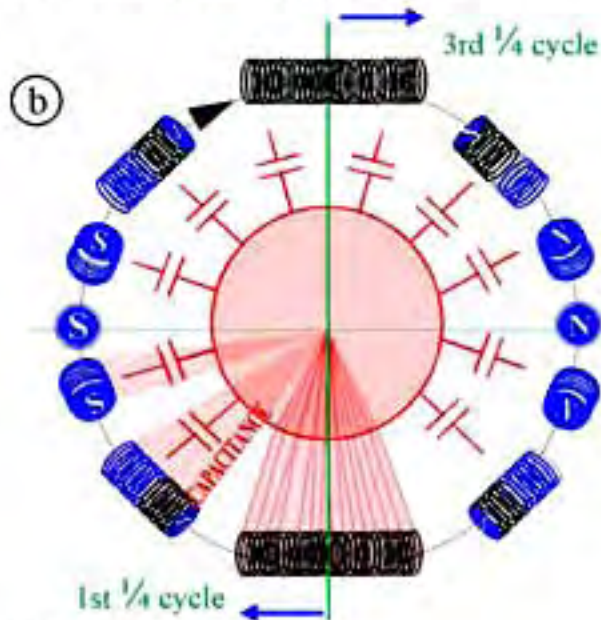
e) The electrons and protons are kept apart by the 'spiked-neutrons'. The positive pole of each spiked-neutron is embedded in the mass of protons contained in the nucleus. The 'neutron positive poles' push against the positive protons, preventing them from springing apart. The 'neutron negative poles' repel the electrons preventing them from getting closer to the nucleus. The spiked-neutrons act like springs, forcing the electrons out and forcing the protons in.



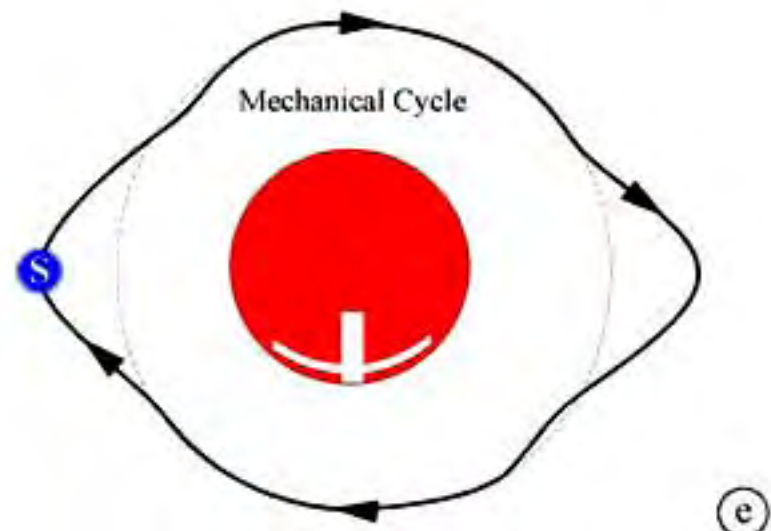
How the Hydrogen Atom Generates Helically polarised EM radiation (overview)



a) Following the Big Bang some free electrons collided at a critical speed with protons. Some became satellites of the proton, creating the Hydrogen atom.



a) Because the proton is electrically positive and the electron electrically negative, the particles are continually drawn together. But the centrifugal force acting on the electron as it orbits the proton defeats coalescence. b) As a result the space between the two differently charged particles becomes filled with electrical tension (an electric field)—a force that would bring the two charged particles together if the balancing forces keeping them apart should ever fail. The amount [capacity] of electric field that can be contained in the space that separates the differently charged particles is known as its *Capacitance*. Because the cylindrical electron orbits the spherical proton around its equatorial region the surface area of the electron presented to the proton varies cyclically, as does the consequential capacitance between them. Analysis of the interaction between the particles shows that the electron topples on its own axis as it orbits the proton. Consider the first quarter (1st $\frac{1}{4}$) cycle; as the electron slices through the electric field energy is absorbed by the electron and manifests as a magnetic field around the electron. During the next $\frac{1}{4}$ cycle the magnetic field decays and energy is returned to the electric field. During the 3rd $\frac{1}{4}$ cycle energy is again absorbed by the electron, this time in the opposite direction than before, establishing a new magnetic polarity in the electron, as shown. During the final $\frac{1}{4}$ cycle the electron again loses its magnetic field and once again returns its energy to the electric field. The oscillating energy between the two particles is thus passed back and forth as the electron orbits the atom. d) The resulting variations in the amount of Capacitance [from one semi-sphere] affected by the electron is shown in d). The variations in Inductance are shown in figure 2.



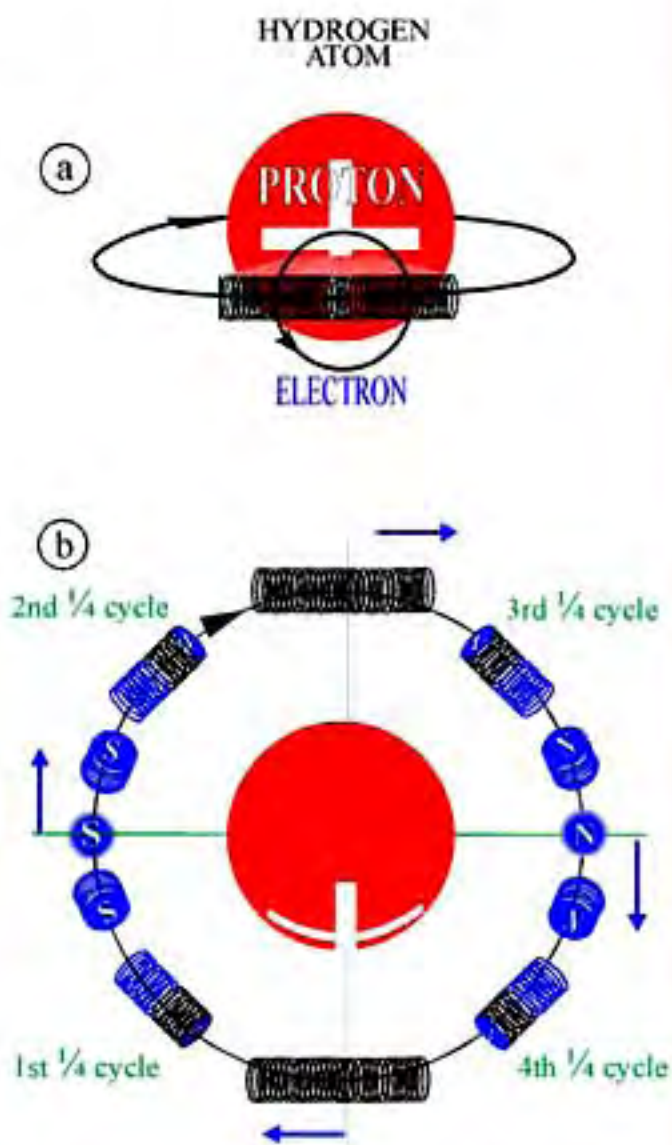
e) Whenever the electron absorbs energy it drains the electric field of some energy and the tension between the two particles diminishes, allowing the electron to increase the size of its orbit. Whenever energy is returned the renewed stronger field pulls the electron back to a position inside the original orbit, momentarily, before returning back to the original orbit. Thus a mechanical cycle also takes place [explaining-away the piezo-electric and magneto-strictive effects apparent in some molecules].

The magnetic field surrounding the electron can be experienced outside of the atom, meaning that some electromagnetic energy is lost (radiates) from the atom into space. As the magnetic field collapses it likewise downloads energy not only back into the electric field but also into space further away from the atom.

It would appear that during the electric to magnetic—and magnetic to electric—conversion process the electron heats up and cools down. As it cools it absorbs heat energy from surrounding ambient heat sufficient to sustain oscillations. At -273.15°C the electron ceases to orbit the proton. Oscillations cease. The atom ceases to attract other atoms.

figure 1.

The Inductance Cycle



a) The negative electron orbits the proton around its equatorial region and cuts through the electric field that subsists between itself and the positive proton. A magnetic field is induced into the electron making one end of the electron a magnetic North-pole and the other end a magnetic South-pole. b) This 'electron-magnet' further interacts with the variable capacitance that subsists between itself and the spherical proton (figure 3) so that as the magnet orbits the proton it topples (spins) on its own axis (like the opposing blades of a windmill). The electromagnetic interaction between the particles causes the electron to spin once [360°] during each orbit of the proton. c) It can be seen that the ends of the electron radiate a magnetic field from the equatorial region towards each polar region. d) Radiation from the northern sector is displaced in phase by 180° from that of the southern sector.

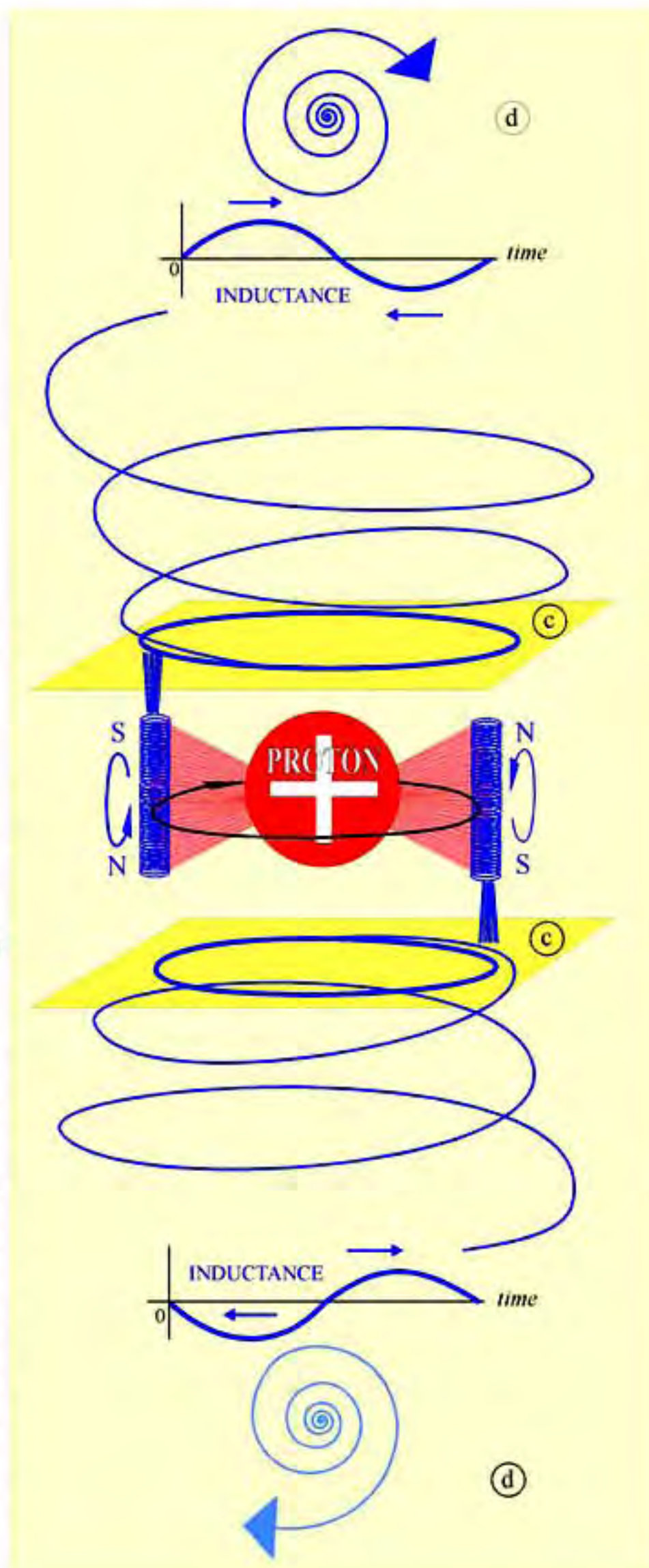


figure 2.

The Capacitance Cycle

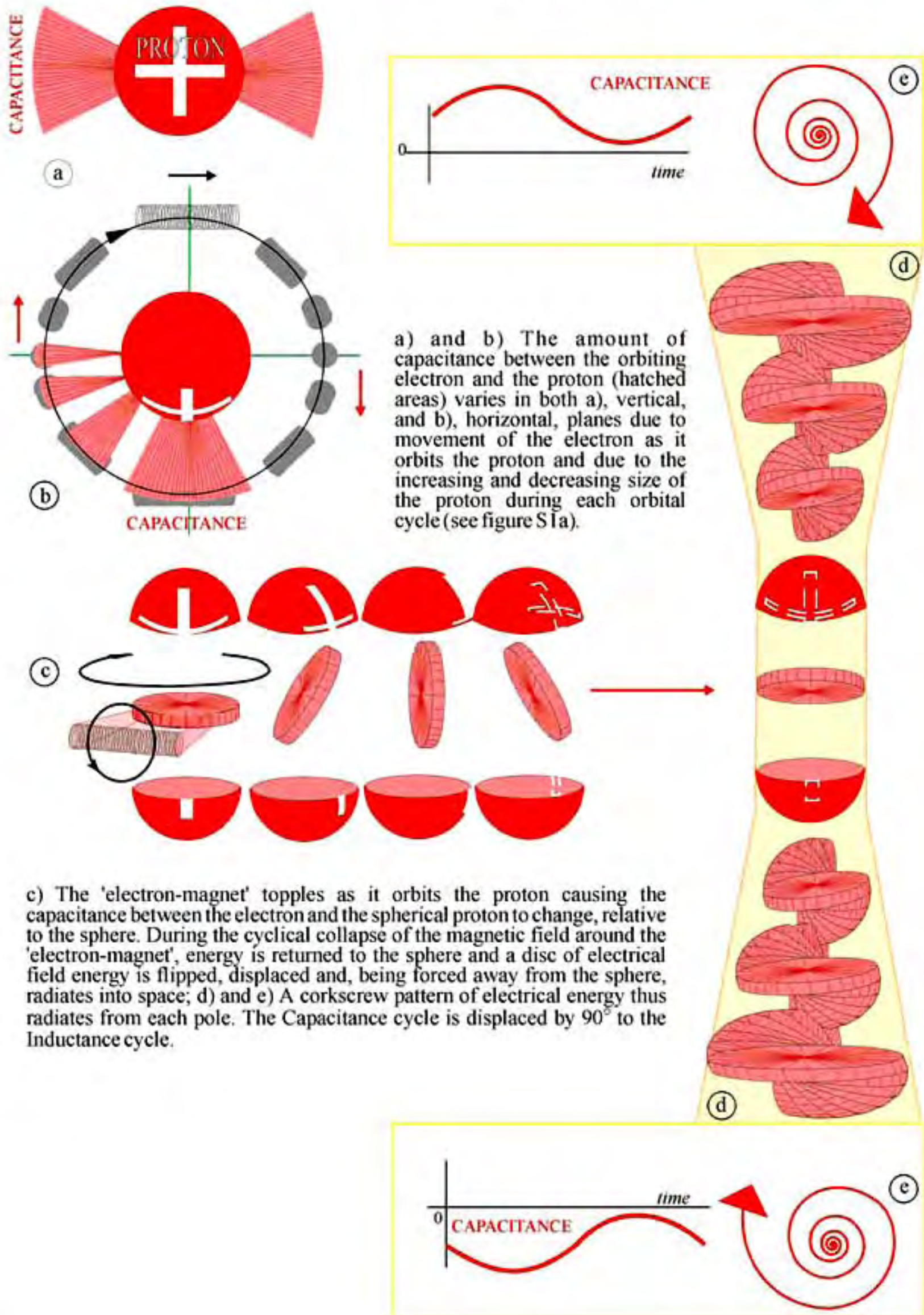
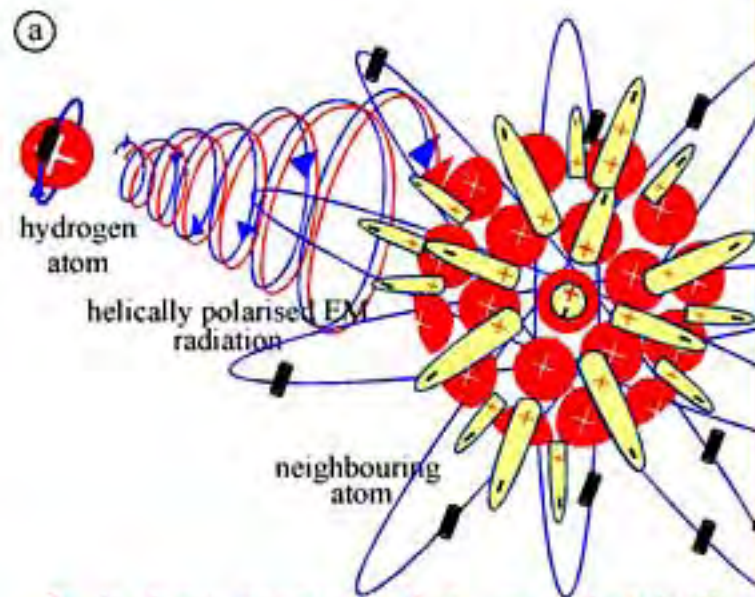
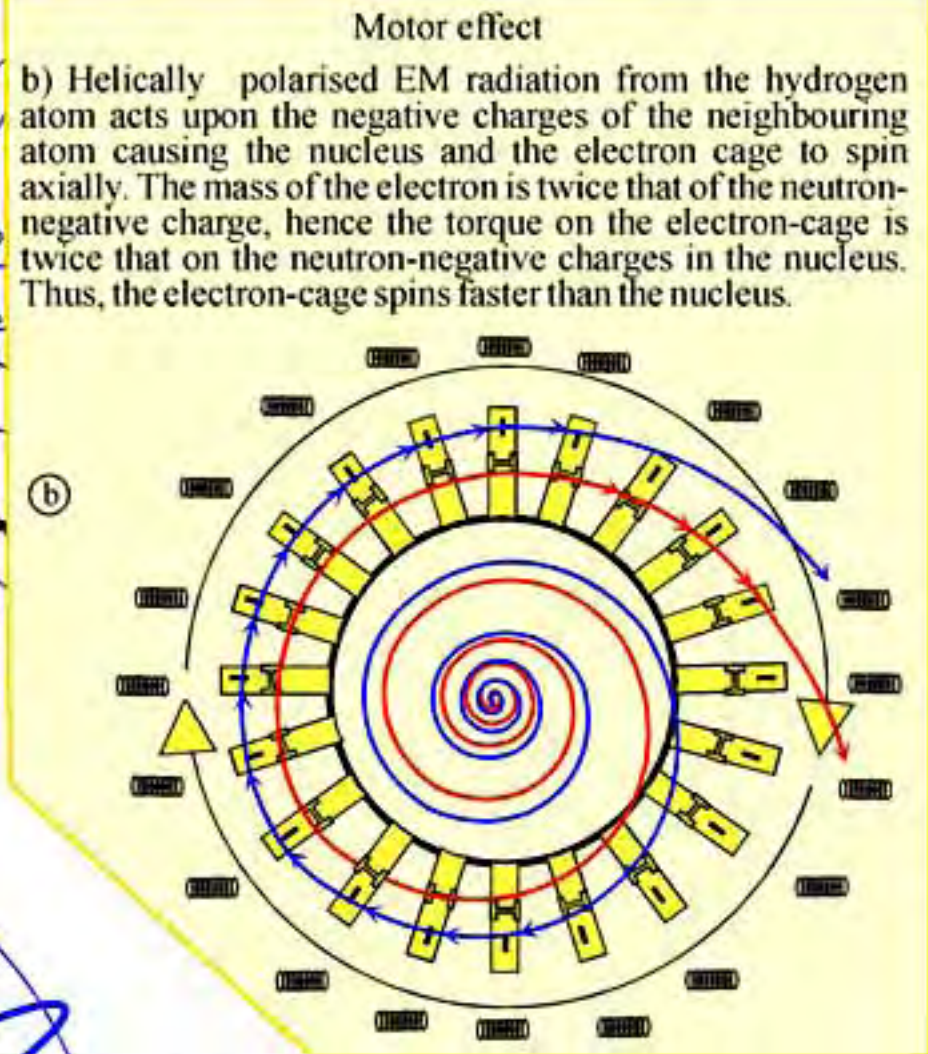


figure 3.

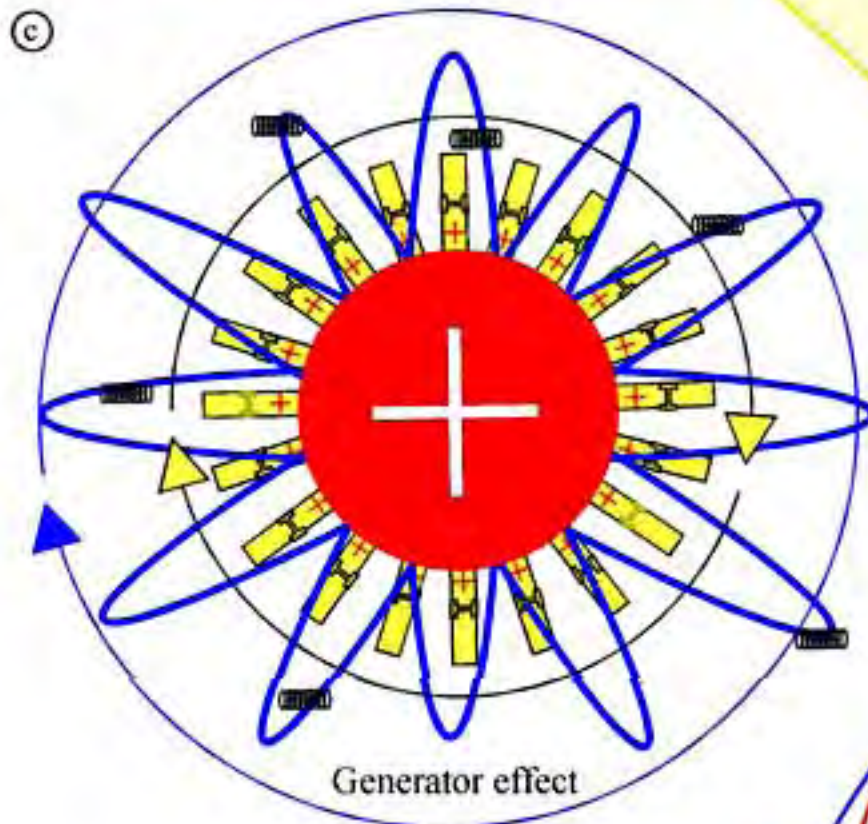
The Motor:Generator Effect between Neighbouring Atoms



It is here proposed that non-electrically-geometrically-symmetrical atoms do not spin 'autonomously' or 'axially'—the mass distribution of the multiple electrons continually shifts, causing the atom to 'tumble' chaotically.



b) Helically polarised EM radiation from the hydrogen atom acts upon the negative charges of the neighbouring atom causing the nucleus and the electron cage to spin axially. The mass of the electron is twice that of the neutron-negative charge, hence the torque on the electron-cage is twice that on the neutron-negative charges in the nucleus. Thus, the electron-cage spins faster than the nucleus.



c) Orbiting electrons generate helically polarised EM radiation that radiates from the atom (see figures 2 and 3). The power output of the atomic generator is proportional to the **differential speed between the nucleus and electron cage** (see also figure 6b) and also proportional to the number of orbiting electrons (atomic mass). Elements with more mass thus generate more EM energy that pulls them towards the Earth with more force, making them more difficult (heavier) to lift.

d) The neighbouring atom radiates helically polarised EM radiation that bombards other neighbouring atoms drawing them closer to the source of radiation.

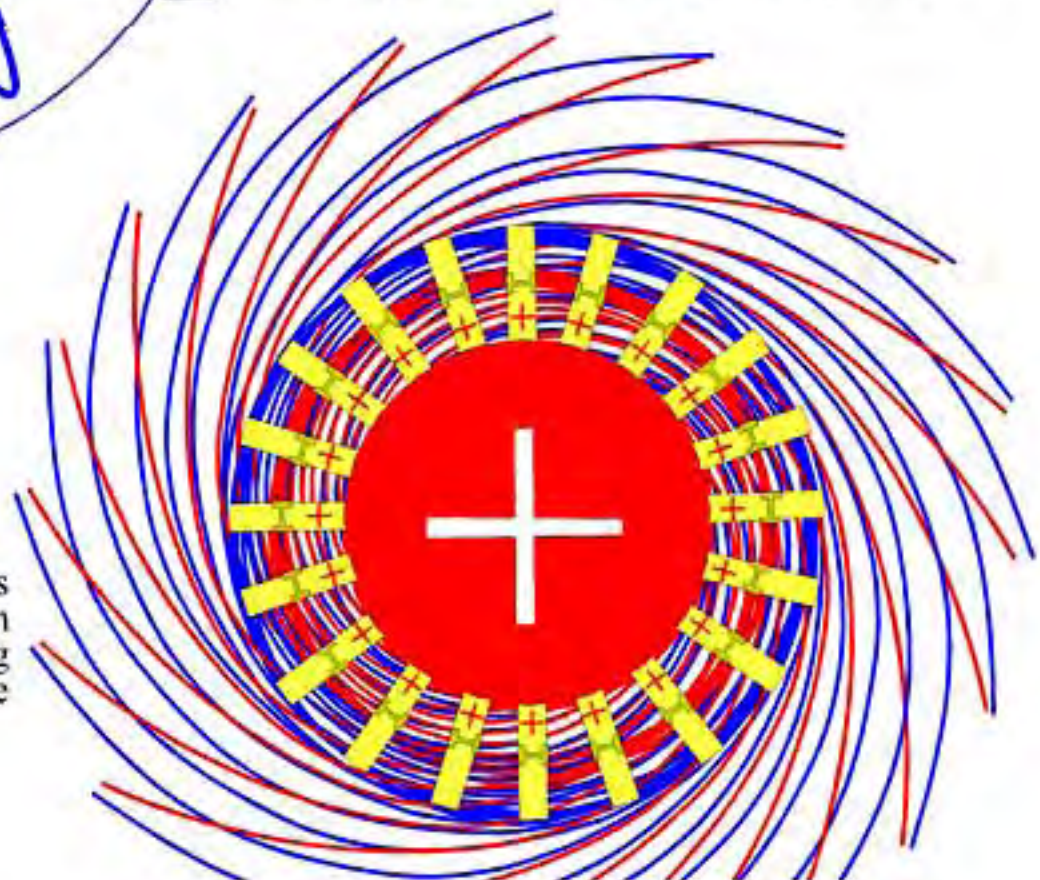


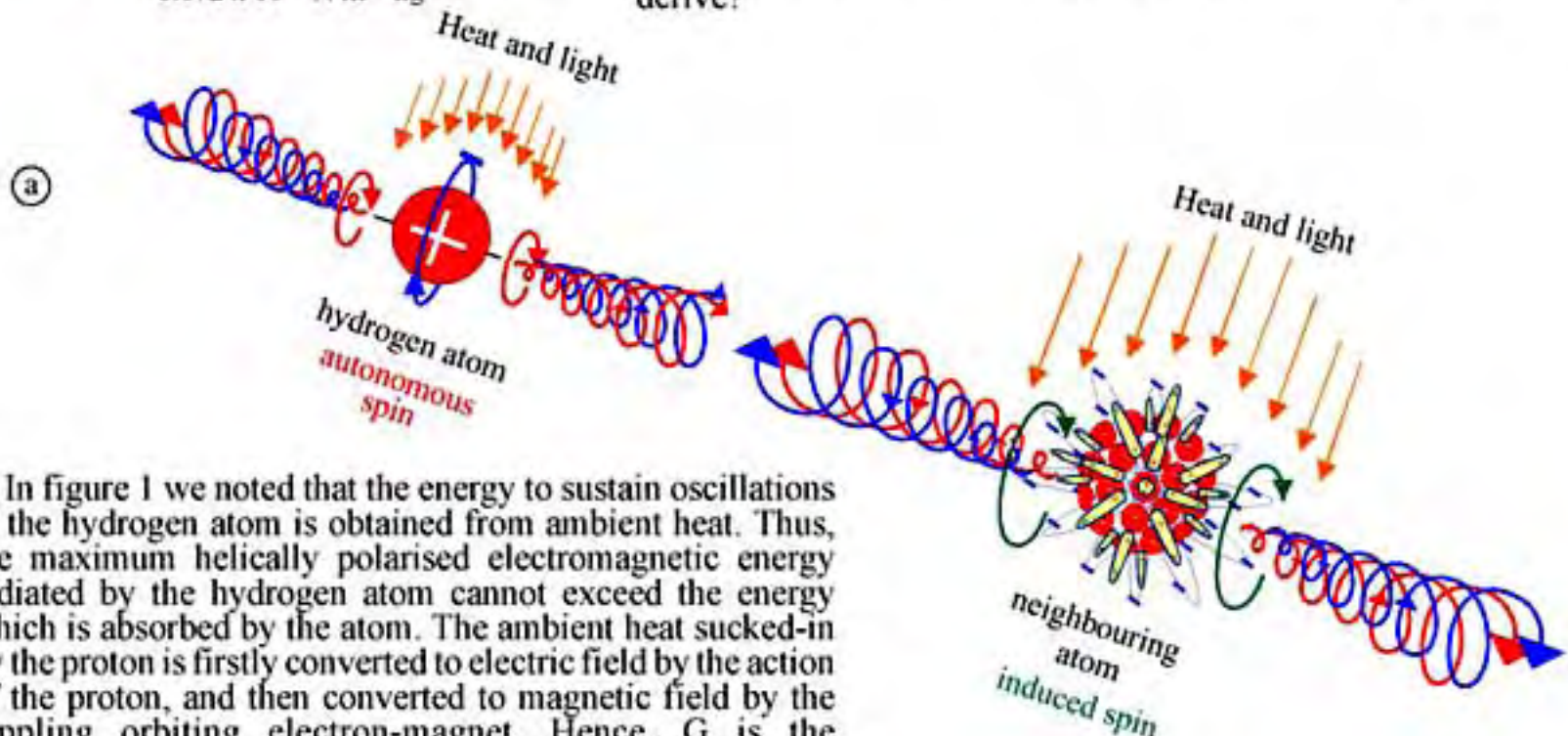
figure 4.

The Gravitational Constant 'G' Defined

$$F = GmM/d^2$$

G is Newton's gravitational constant
 $6.672 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$

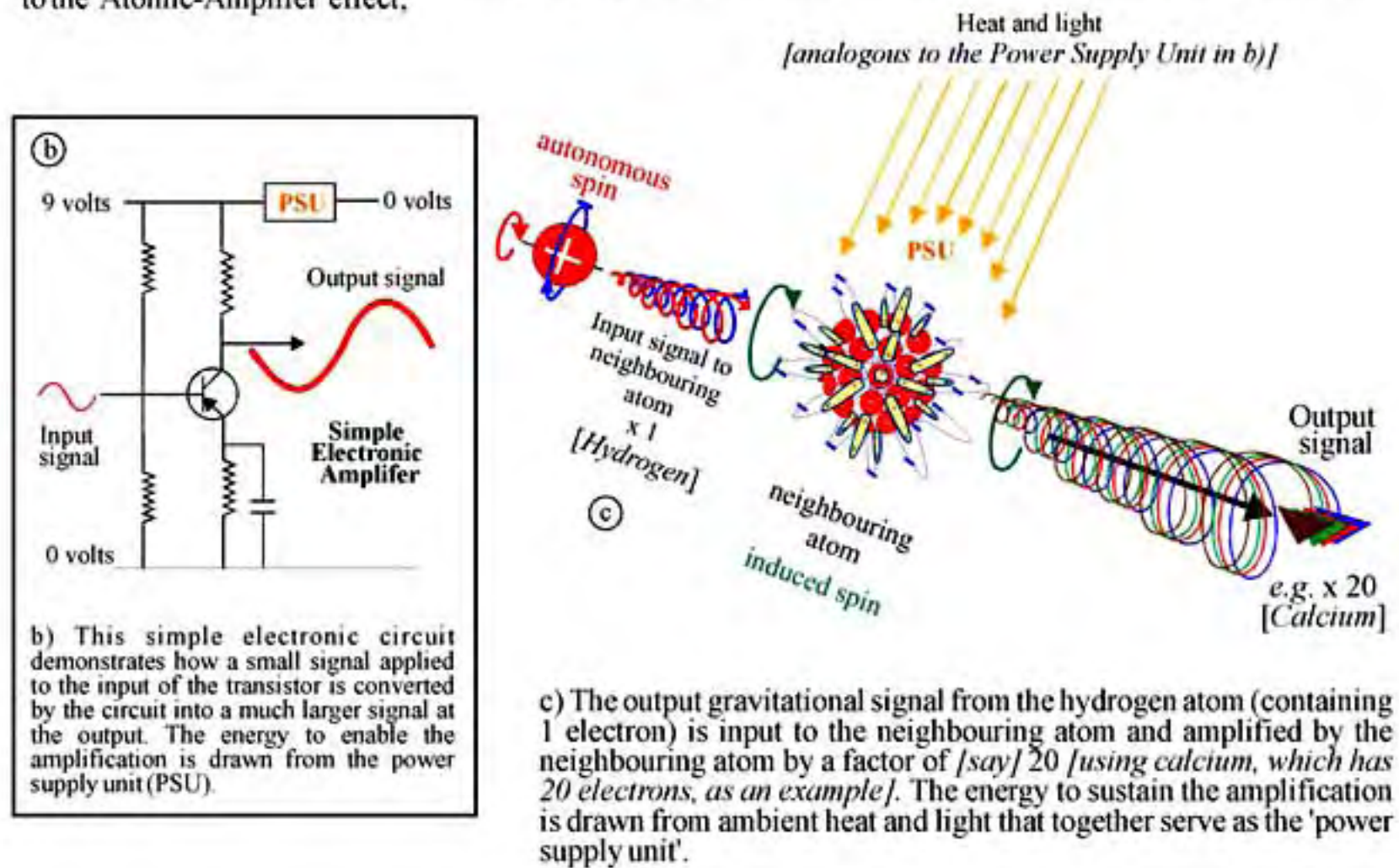
We have seen why the gravitational force F is proportional to the masses of the two attracting bodies and why the strength of the force diminishes inversely with the square of the distance between them. But from where does the gravitational constant 'G' derive?



a) In figure 1 we noted that the energy to sustain oscillations in the hydrogen atom is obtained from ambient heat. Thus, the maximum helically polarised electromagnetic energy radiated by the hydrogen atom cannot exceed the energy which is absorbed by the atom. The ambient heat sucked-in by the proton is firstly converted to electric field by the action of the proton, and then converted to magnetic field by the toppling orbiting electron-magnet. Hence, G is the 'instantaneous alternating magnetic force between any two electron-magnets in neighbouring atoms'.

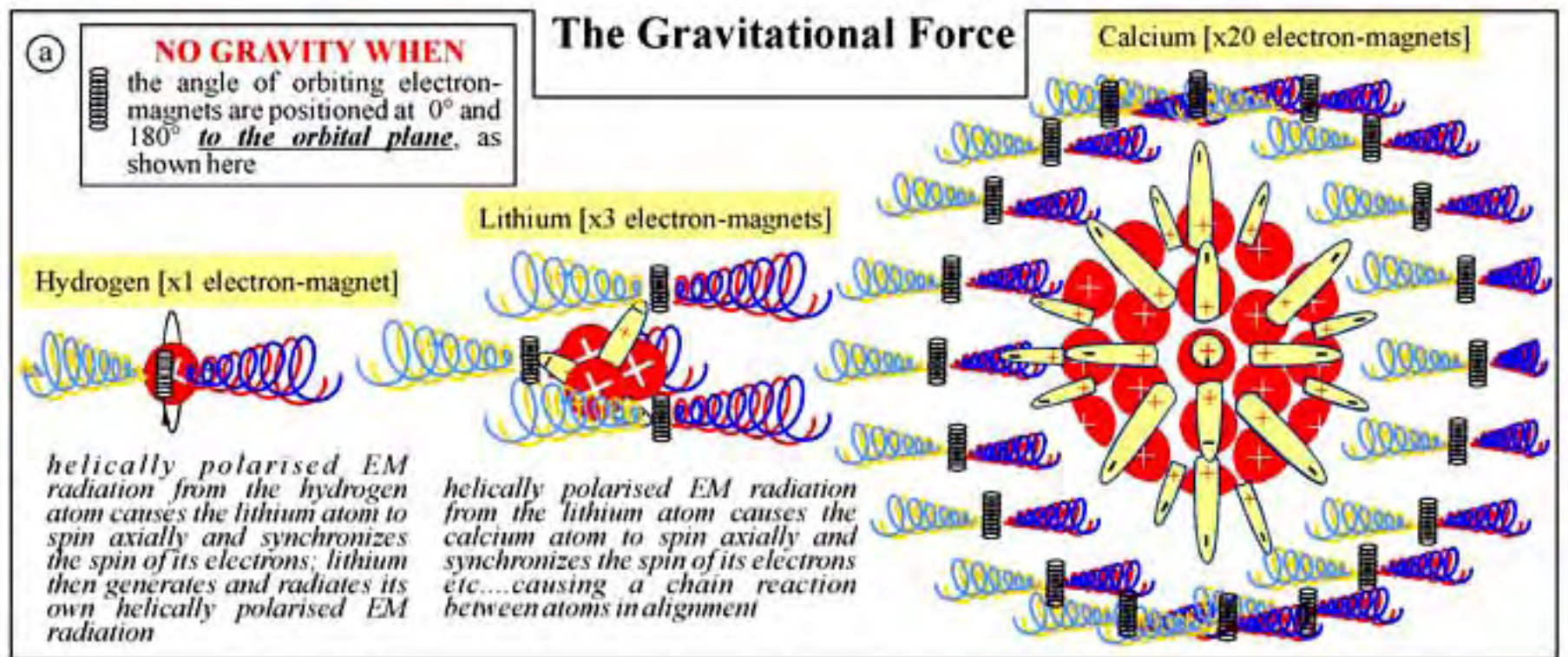
Gravitational Energy output of an Atom—the Atomic-Amplifier Effect

The helically polarised electromagnetic output from a neighbouring atom can exceed by many times the helically polarised electromagnetic energy input to that atom which induces axial spin into the atom. This is due to the 'Atomic-Amplifier' effect;



b) This simple electronic circuit demonstrates how a small signal applied to the input of the transistor is converted by the circuit into a much larger signal at the output. The energy to enable the amplification is drawn from the power supply unit (PSU).

c) The output gravitational signal from the hydrogen atom (containing 1 electron) is input to the neighbouring atom and amplified by the neighbouring atom by a factor of [say] 20 [using calcium, which has 20 electrons, as an example]. The energy to sustain the amplification is drawn from ambient heat and light that together serve as the 'power supply unit'.



The orbiting coil-shaped hydrogen electron behaves like a spinning permanent magnet (an *electron-magnet*) that radiates helically polarised EM energy into space. The radiating energy bombards neighbouring atoms causing them to spin axially in the same direction. Electrons in those atoms likewise behave like electron-magnets that similarly radiate helically polarised EM energy into space. a) In a cascade of atoms (for example hydrogen, lithium and calcium) the electron-magnets in neighbouring atoms are organised like compass needles, to face in the same direction (to synchronize their spin). b) and c) As a result, electron-magnets in adjacent atoms face each other with opposite polarity. Thus, the magnetic polarity between adjacent electron-magnets in adjacent atoms must be complementary, meaning that electron-magnets in one atom must attract electron-magnets in adjacent atoms (as shown by arrows). Electron-magnets in adjacent atoms thus attract each other in accordance with the laws of magnetism—under the influence of a helically polarised organising field. Hence, the force of Gravity is 'electron-magnetism under the influence of helically polarised EM energy'. *Supporting evidence; Nature, 2009;458 (7238):610 DOI: 10.1038.nature07871 [persistent spin helix].*

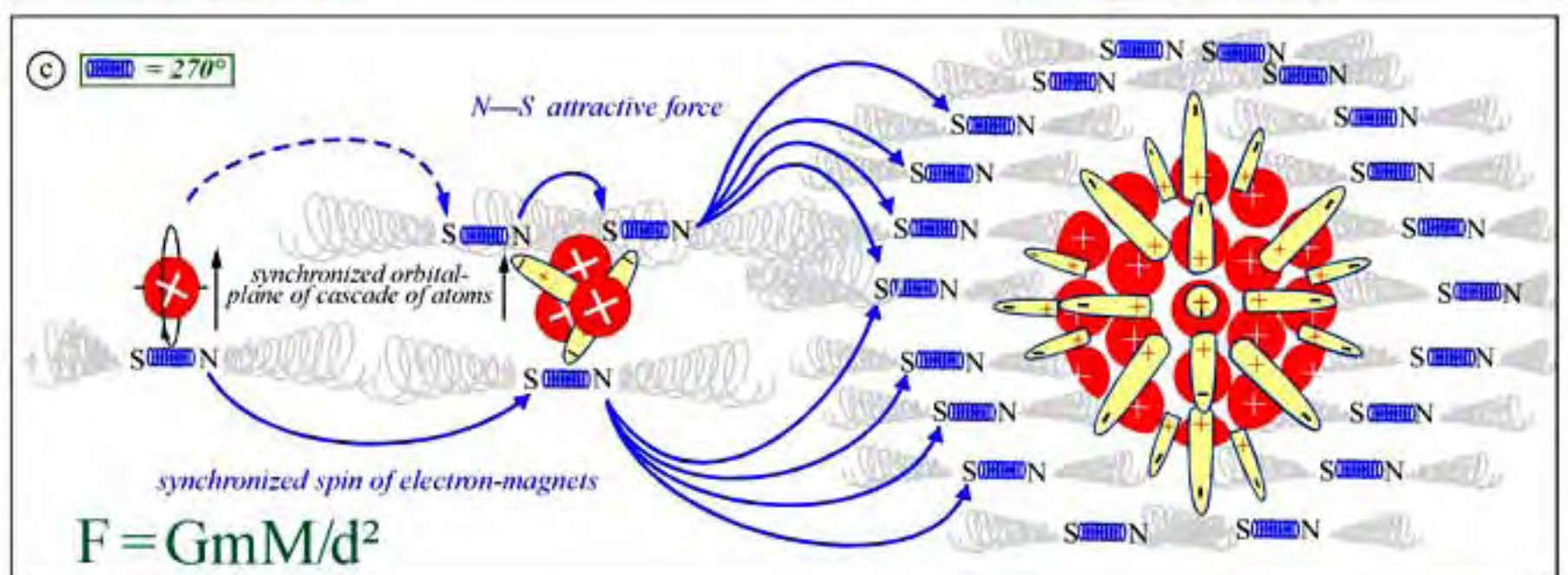
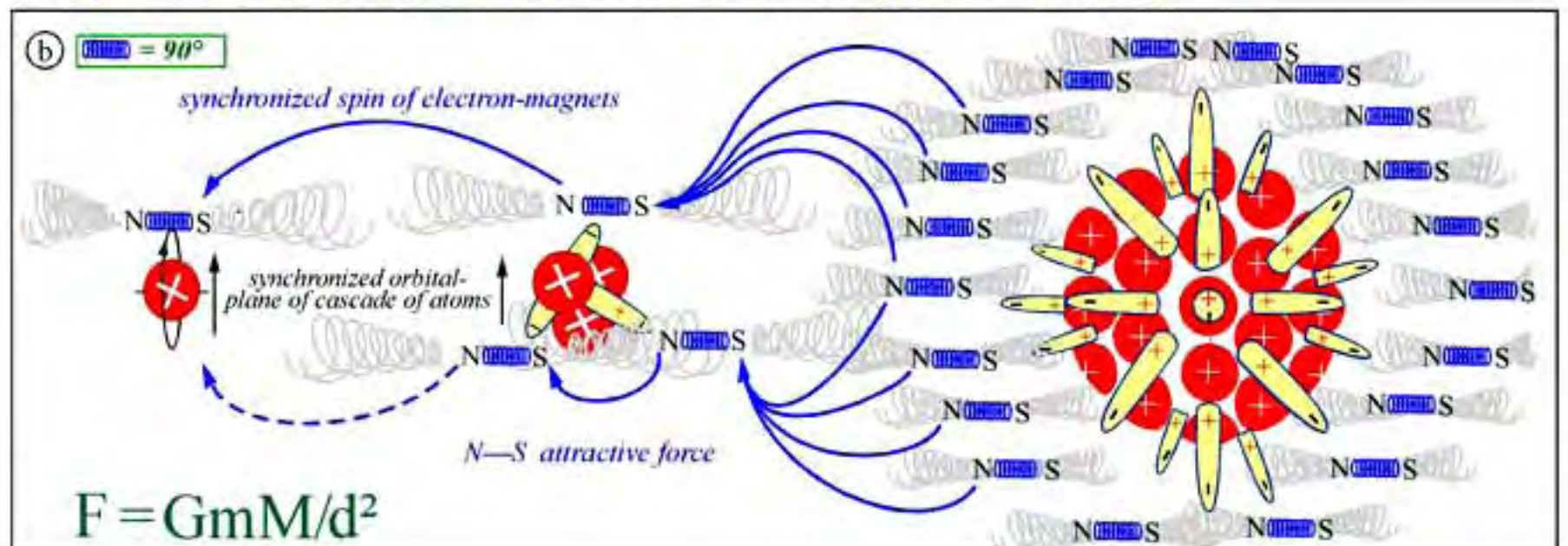


figure 5/II.

The Reasons why the atom is Stable

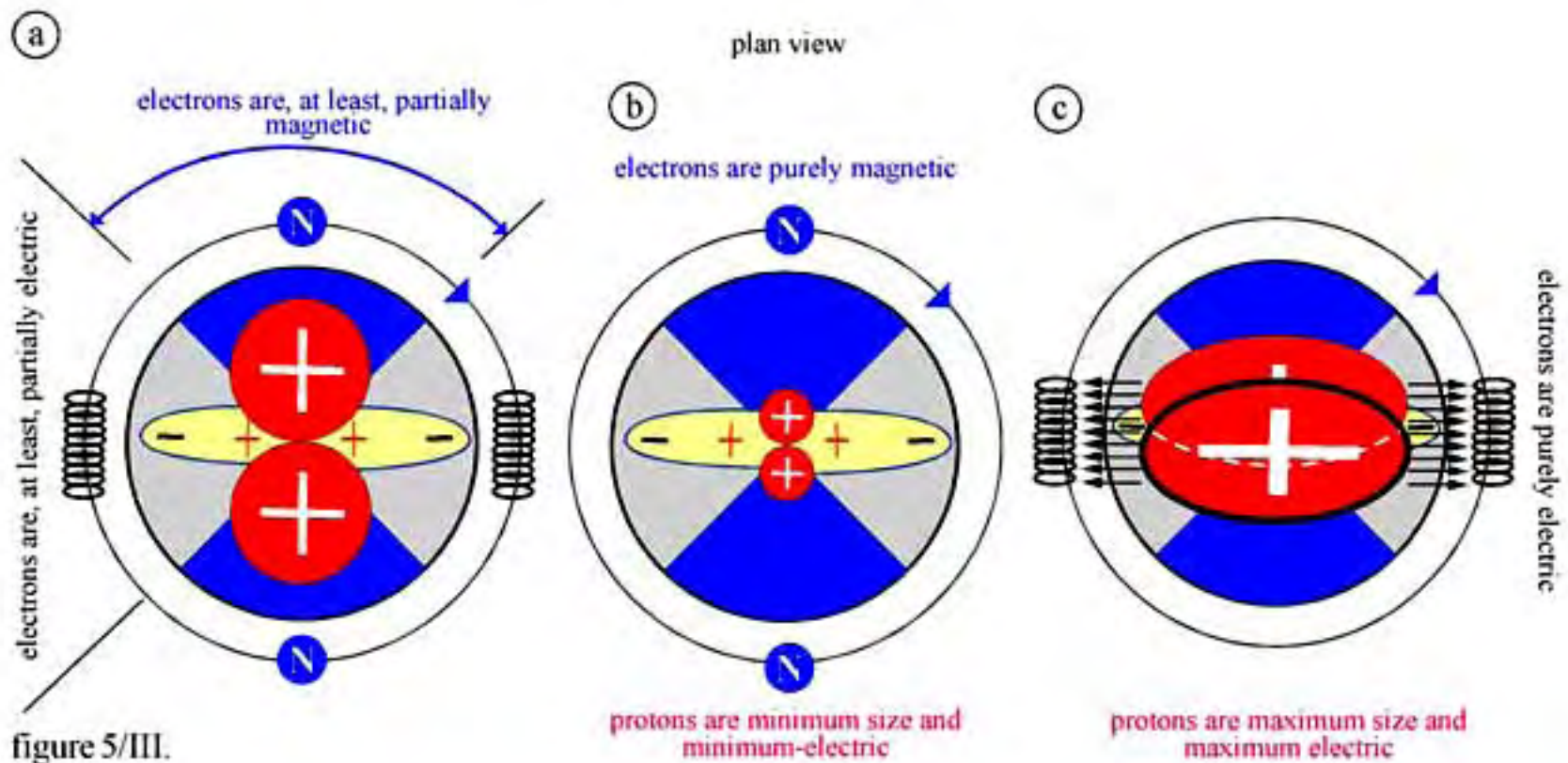


figure 5/III.

Figure 5/II illustrates how the electron behaves as a permanent magnet at 90° and 270° from its starting position and does not possess a magnetic field at 0° and 180° . The electron is magnetic therefore during only half of the time it orbits the nucleus. We note further, [without wishing to state the obvious], that because a purely magnetic field and a purely electric field are displaced by 90° a particle cannot be purely both electric and magnetic simultaneously—the two are mutually exclusive. Hence, if an electrically negative electron possesses magnetic qualities for half of the time it follows that it cannot be simultaneously electrical during that same part of the cycle. The electron, therefore, can only be considered as having electrical properties for half of the time

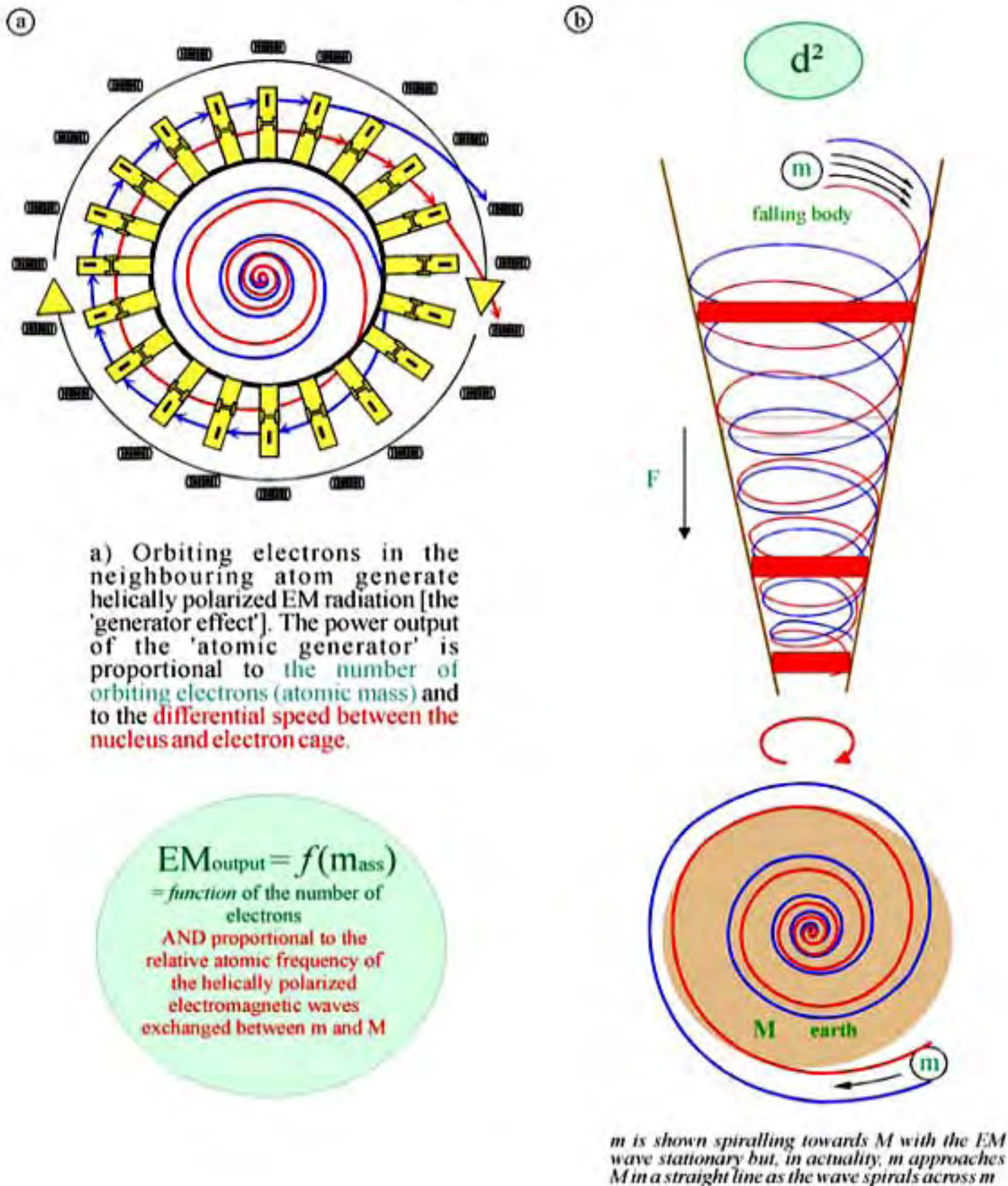
a) Shows the electric and magnetic possibilities, in plan view, of two electrons as they orbit the nucleus of a helium atom. b) When the electrons are each purely magnetic they cannot be attracted to an electric particle (the proton). Hence the magnetic electron is not attracted towards the nucleus during the quadrants shaded in blue. c) 90° later, the electron is maximum electric, but the charge on the nearby neutron-negative prevents them moving closer to the nucleus. Thus, the electrons cannot be sucked-into the nucleus. b) We also note that during the blue quadrants the protons, drained of energy, physically shrink [compress, rapidly], release heat and cool. Hence the Capacitance between electrons and protons reduces during the blue quadrants [because Capacitance varies with distance between particles and the surface area of each particle]. In regard to the proton; during the blue quadrants, when the electron is maximum-magnetic, the positive electrical charge of each proton is minimal and the force of repulsion between protons, minimal; hence the protons have little propensity to move apart during the blue quadrants. c) as the electrons move into the grey quadrants the protons begin to suck-in ambient heat and expand rapidly. Expansion of each proton is constrained by its ability to suck-in energy from its surroundings. As the protons expand, the distance between them and the electrons reduces and their surface area increases, increasing the amount of capacitance between them. It can thus be seen that when the electric particle is maximum-electric, the proton is also maximum-electric and attraction between the electrons and protons is maximum. The protons are thus stretched between the pair of electrons and have no propensity to spring apart. This is why the maximum, and minimum, number of electrons and protons sustainable in the first orbital shell of atoms containing spiked-neutrons is 2.

We conclude that orbiting electrons possess an increasing and decreasing magnetic field that alternates with an increase and decrease of atomic capacitance. The two forces unite in self-sustaining oscillation, where the proton increases and decreases in size and shape, alternately losing heat and sucking-in heat from its surroundings.

This unique electromagnetic interchange between the electron, neutron and proton, further explains why the gravitational force [“electron-magnetism under the influence of helically polarised electromagnetic radiation”] cannot be measured—because the magnetic moments alternate in polarity as the electrons orbit the nucleus; meaning that the gravitational force attracts in a forward motion, and then in a backwards motion, during one orbital cycle of the electrons, as illustrated by figures 5/IIb and 5/IIc. That is to say that in plan view b) the electrons both show N polarity and then 180° later, they both show S polarity, thus producing an alternating mutually attractive magnetic force. At the same time, the atom radiates alternating helically polarised electromagnetic energy that synchronizes the spin of electrons in neighbouring atoms.

The Effect of Gravity on a Falling Object

Why do falling objects fall at the same acceleration, irrespective of their 'weight'?



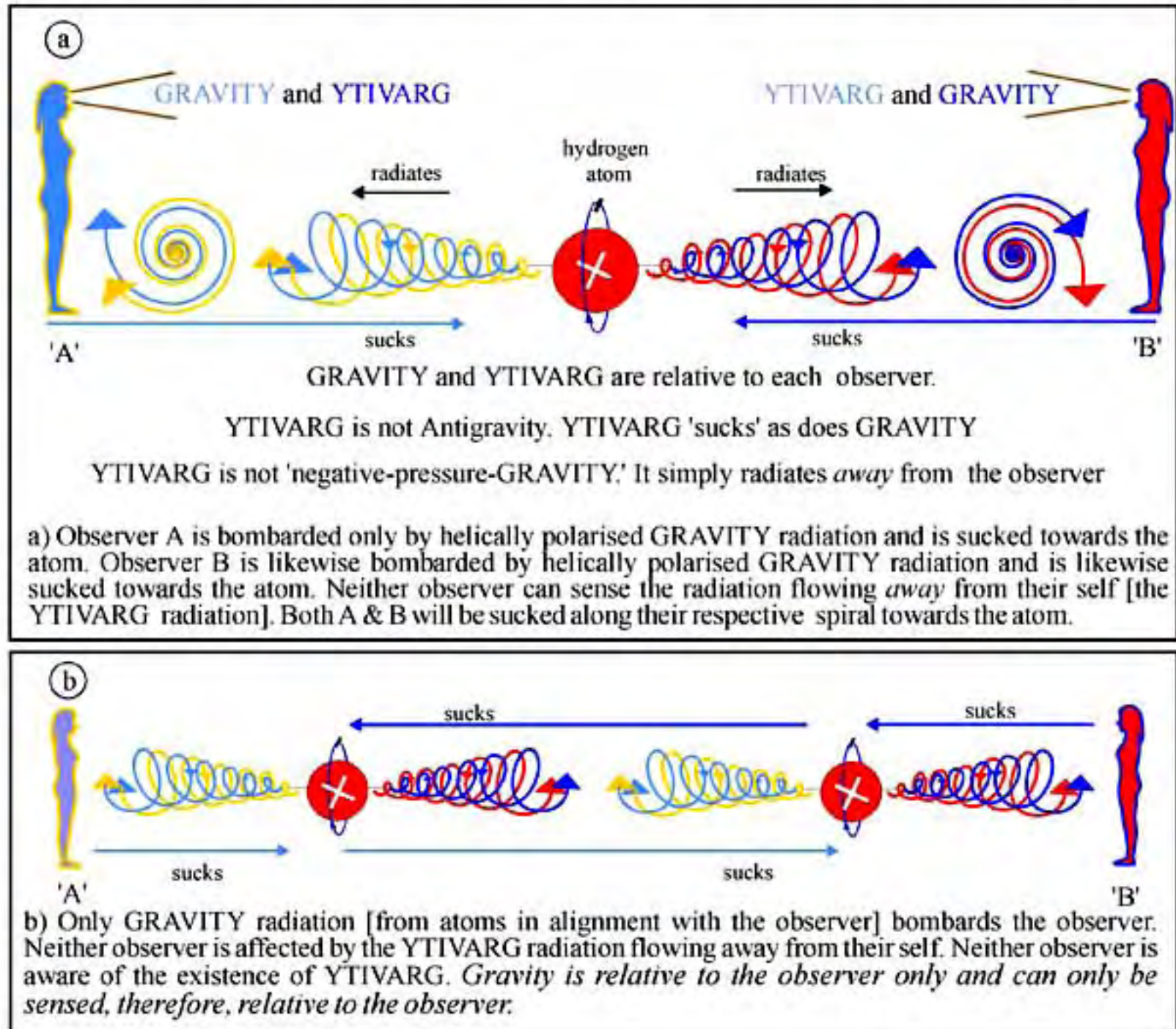
b) The frequency of the helically polarised EM radiation from the Earth remains constant. However, as m approaches M the spiraling EM radiation accelerates the differential rotation between each atomic nucleus and electron cage of which m is made. As a result the 'relative' atomic frequency increases and hence the output of the 'atomic generator' increases, increasing uniformly the attracting EM Force between m and M in accordance with a square-law scale as m proceeds along the EM spiral. M thus attracts m with square-law [d^2] uniform acceleration.

figure 6.

The Nature of Dark Matter (I)

What could be responsible for Dark Matter—non-visible matter that would produce enough gravity to account for the accretion of stars into clusters?

The hydrogen atom radiates GRAVITY radiation from polar regions. Consider the effect of such radiation on observers stationed at opposite poles of an atom; each observer will be bombarded by corkscrew EM radiation.



The Reason why Spiral Galaxies are Spiral

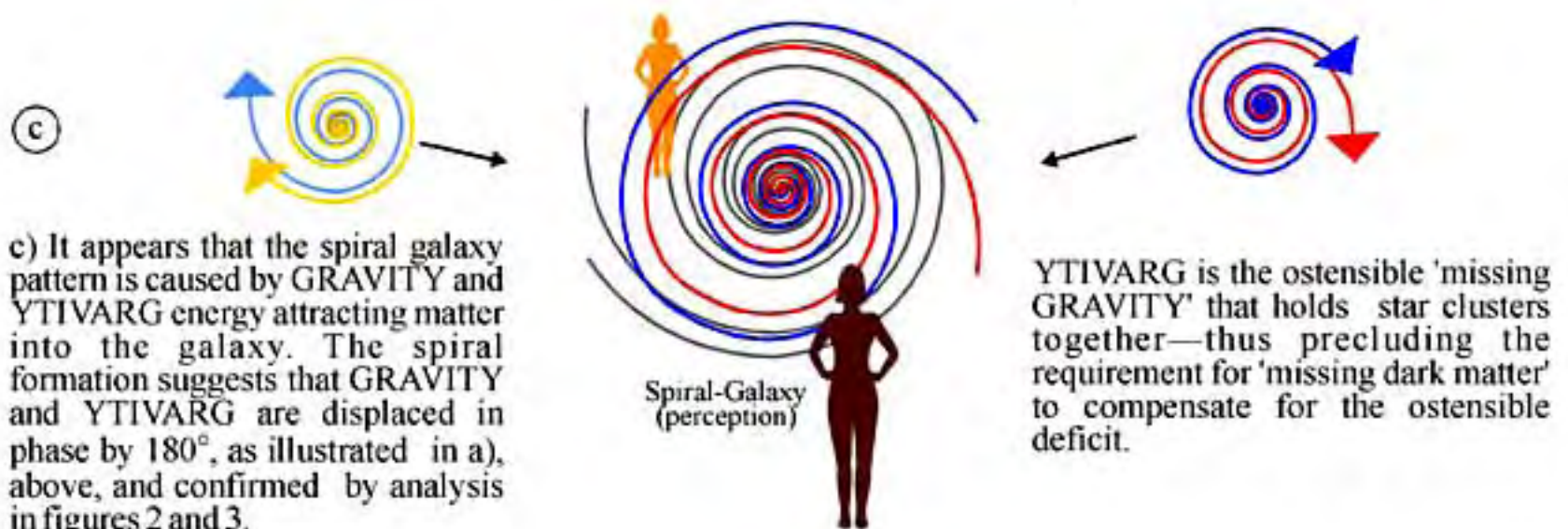
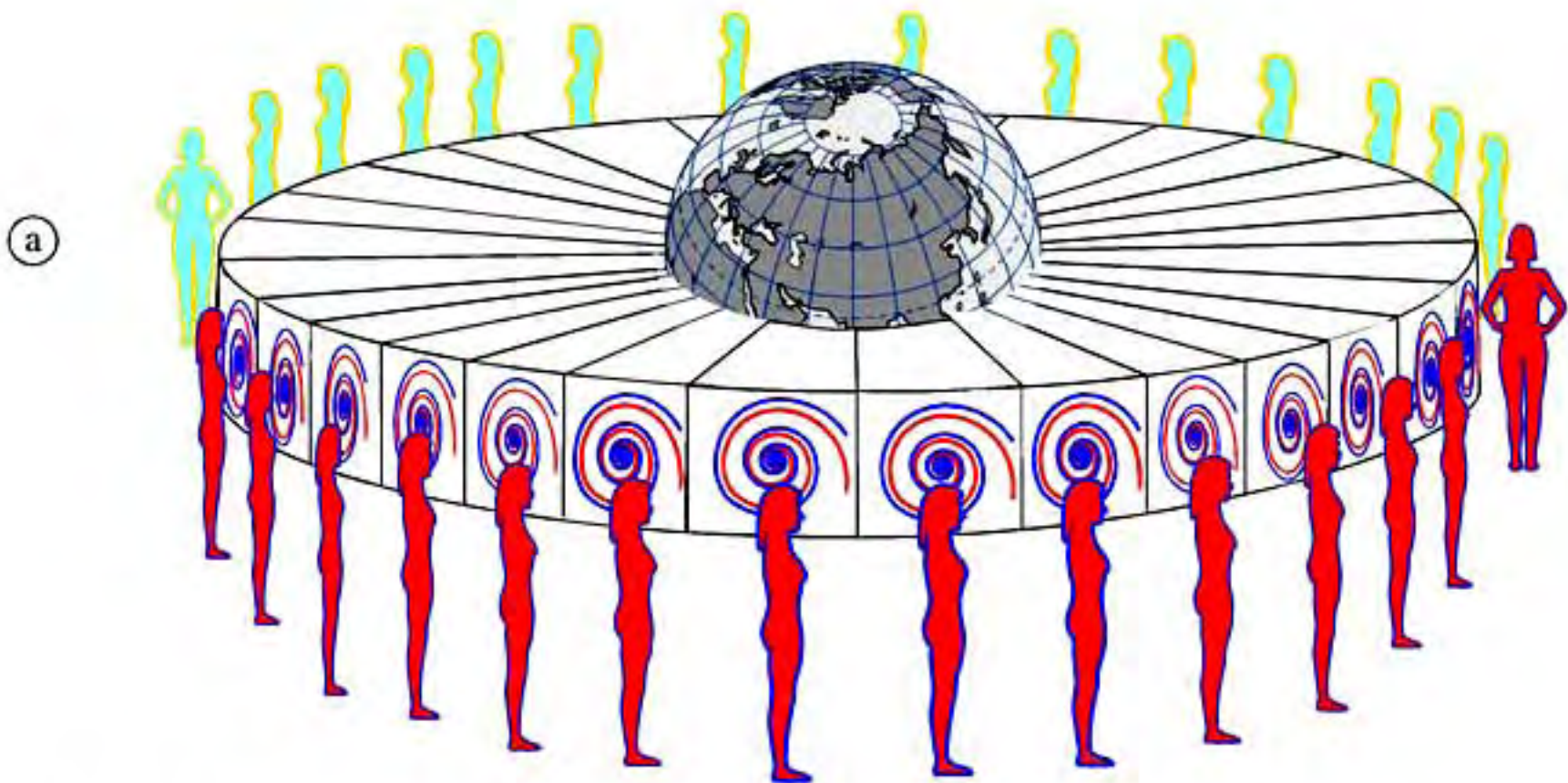
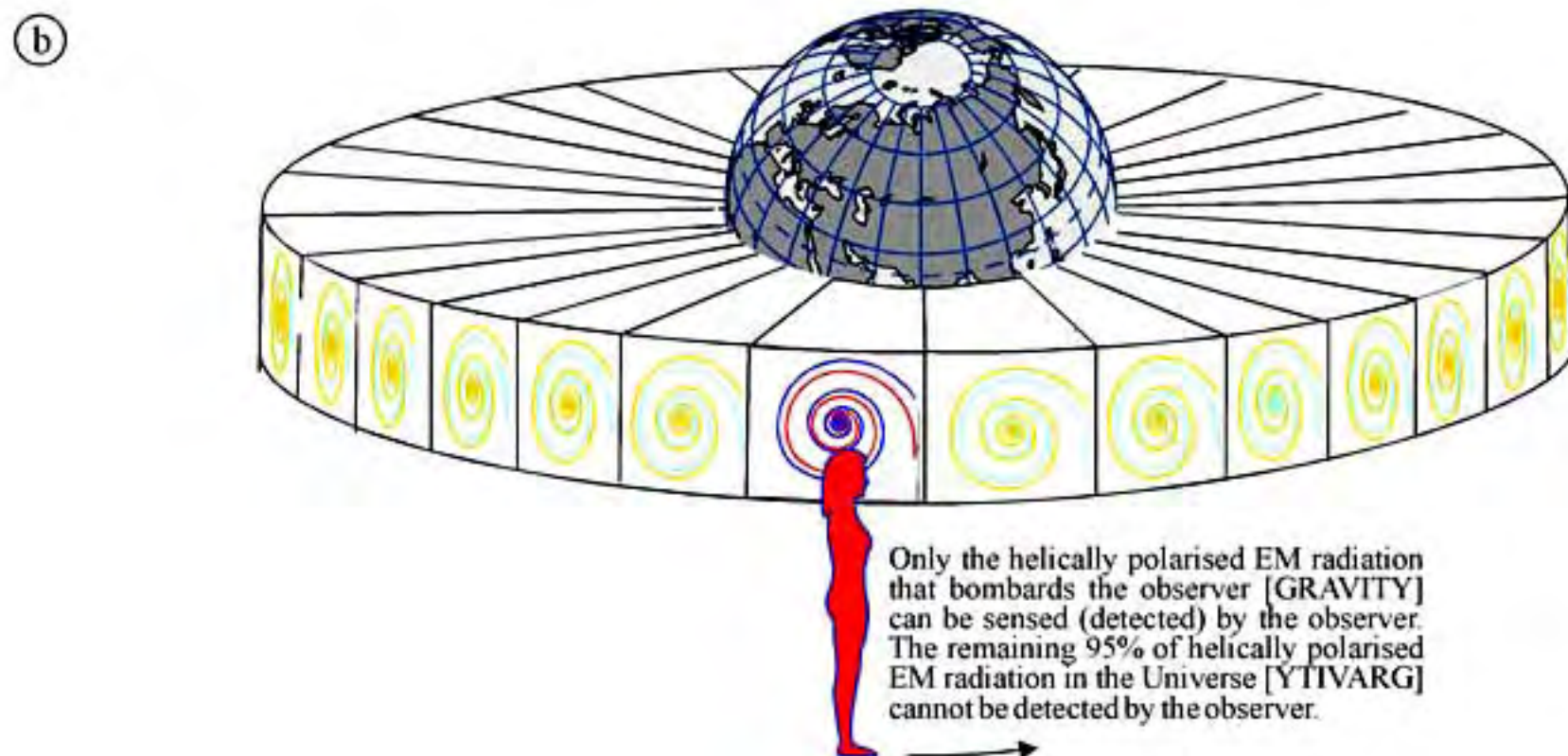


figure 7.

The Nature of Dark Matter (II)



a) At first it appears that YTIVARG accounts for 50% of the missing helically polarised EM energy in the Universe [see figure 7, a)].



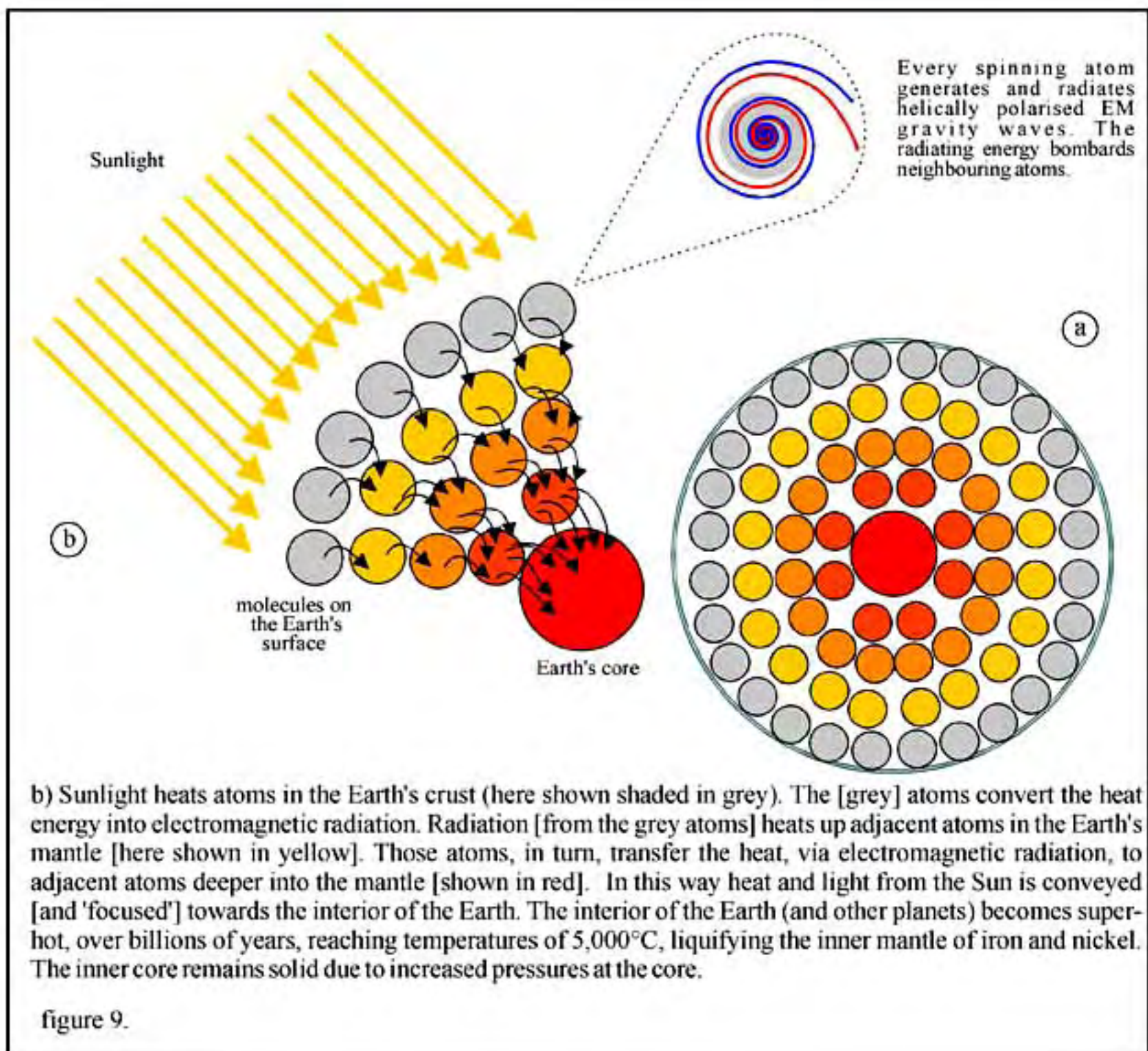
b) However, as an observer steps around the Universe it becomes clear that GRAVITY—that force of attraction bombarding the observer—accounts for only a tiny percentage of helically polarised EM energy available in the Universe.

The Reason Why the Earth's Core is Red-Hot

No-one knows why the inside of the planet is hot. The 'Cold Forming Hypothesis' of planetary formation suggests that particles of dust from interstellar gas clouds came together under the influence of gravity, accumulating over time, to form larger bodies that eventually grew into planets. So, if the planet Earth was formed in this way, what caused the heating of the inner core?

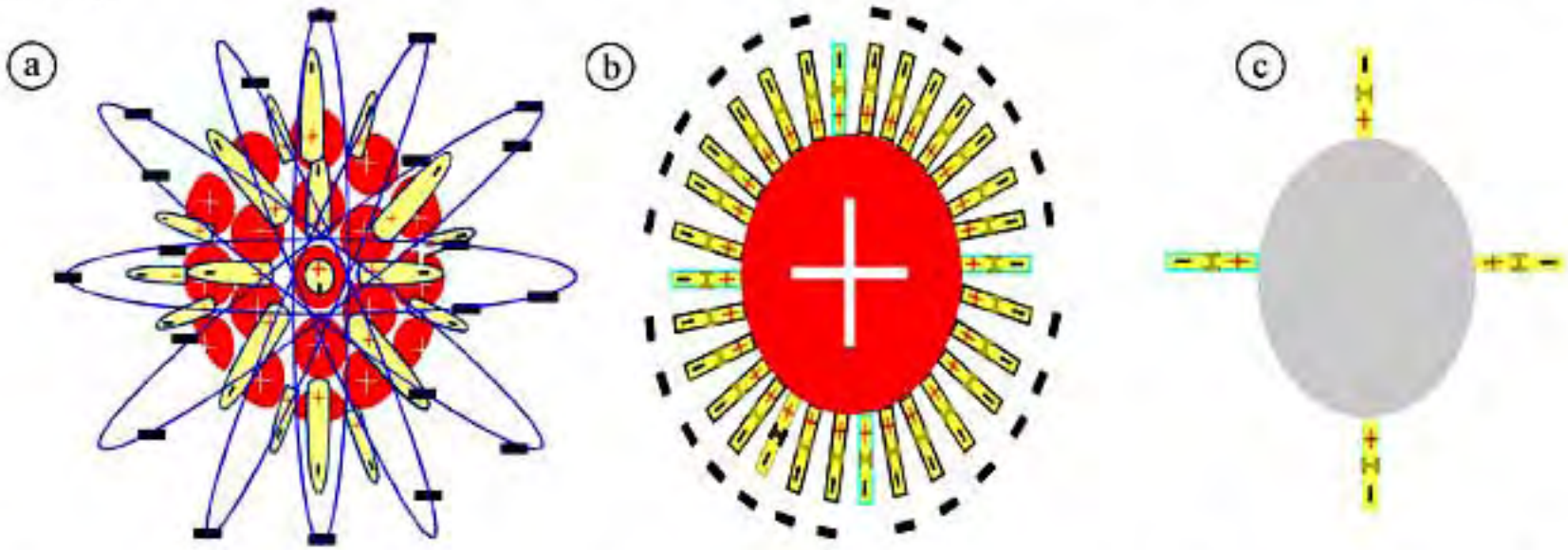
The crust of the Earth (figure 9, a)) measures from around 4 – 25 miles deep. Beneath the crust lies an upper mantle, 390 miles thick and beneath that the lower mantle, 1,425 miles thick, with mantle temperatures ranging from around 1,500 – 3,000°C. Surrounding the core, to a radius of around 1,450 miles, lies the outer core of molten iron and nickel, with temperatures ranging from around 3,000 – 5,000°C. The solid core of iron and nickel, to a radius of around 775 miles, is heated to around 5,000°C, but remains solid, despite the temperature, due to the increased core pressure [and concomitant temperature increases required to melt the metals at such pressures].

Now that we understand that all atoms radiate gravity radiation we can understand how and why the Earth became super-hot; the energy to sustain gravity radiation derives from sunlight striking the Earth's surface (figure 9, b)). Each atom therefore absorbs heat, generates gravity waves and re-radiates energy in the form of gravity radiation, downloading energy towards the centre of the Earth's core.

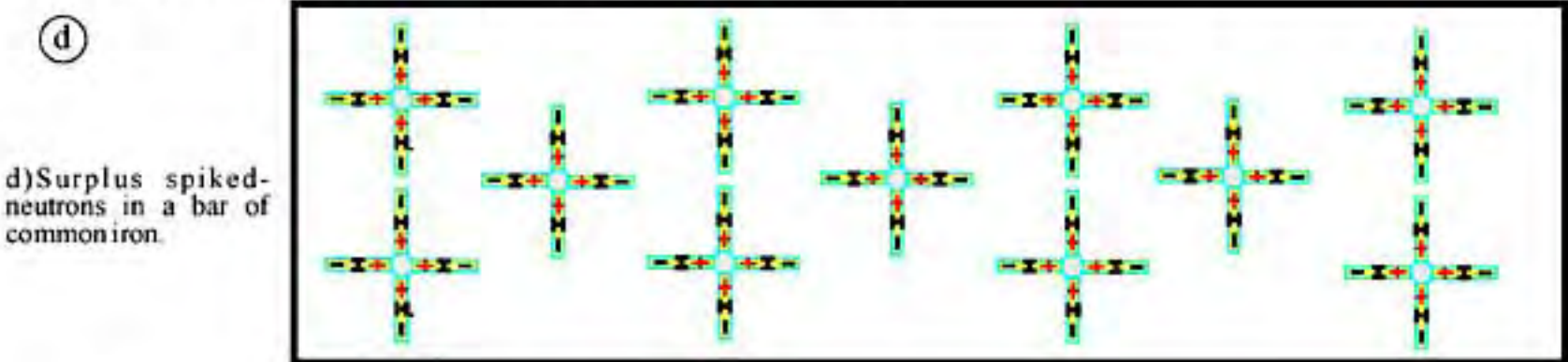


The Cause of Permanent Magnetism—The Reason Why Iron is Magnetic

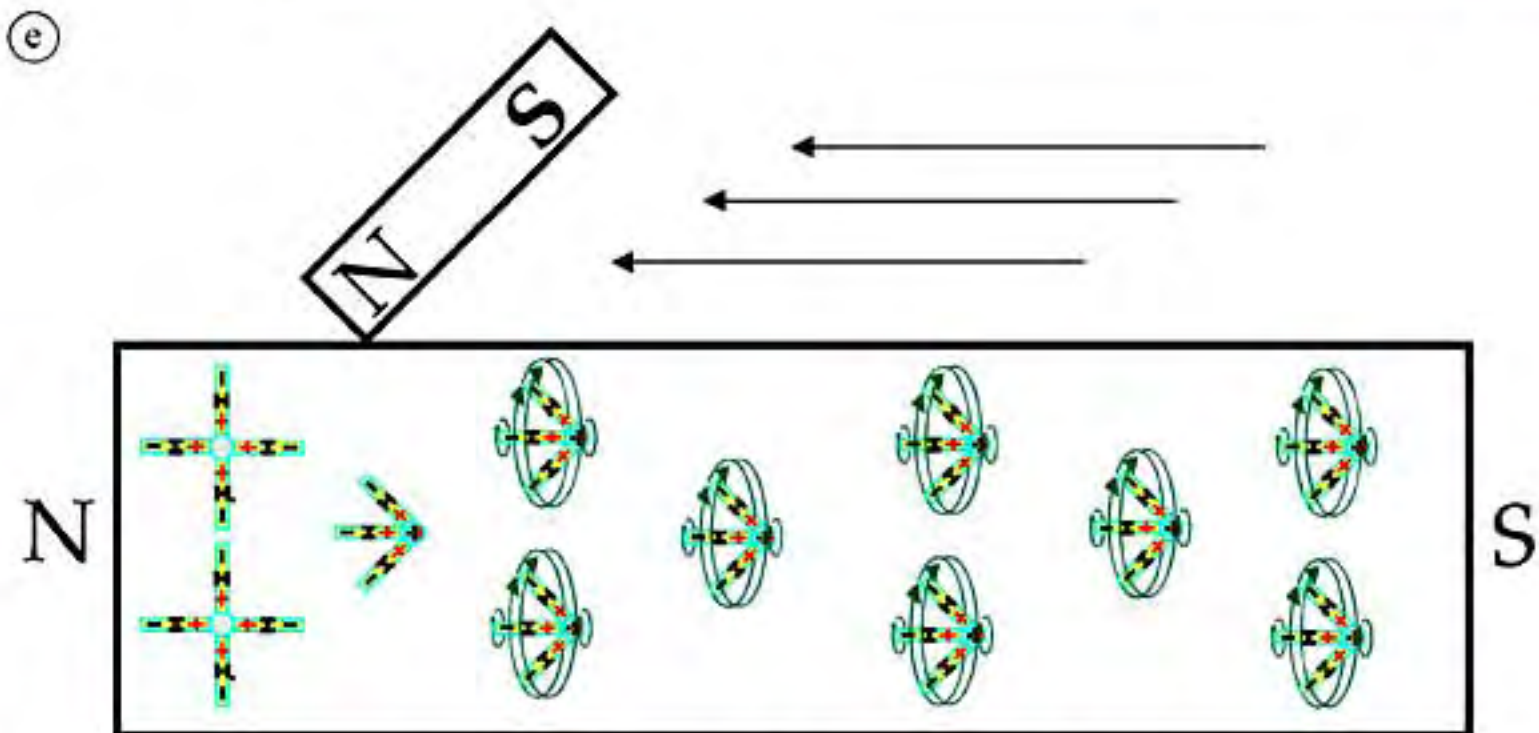
Regular atoms consist of equal numbers of protons, neutrons and electrons. However, some types of atom contain more neutrons than others and are known as *isotopes*. Iron is an isotope. Common iron has 30 neutrons, 26 electrons and 26 protons. [There are also other stable isotopes of iron with 28, 31, and 32, neutrons in the nucleus].



a) Common iron has 30 spiked-neutrons in the nucleus. b) The electrical charge of 26 of the protons is electrically negated by the electrical charge of 26 electrons. 26 of the spiked-neutrons are *engaged* in keeping apart the 26 pairs of electrons and protons. Ignoring (for purposes of illustration) the 26 pairs of protons and electrons, and 26 of the neutrons that are gainfully employed in keeping the protons and electrons apart, the iron atom is left with an isotopic *excess-spiked-neutron* count of 4 (as illustrated by c).



d) Surplus spiked-neutrons in a bar of common iron.



e) Stroking a bar of common iron with a permanent magnet causes the *excess-spiked-neutrons* to align their polarity. The same follows for the magnetic isotopes of nickel and cobalt. The nucleus of each atom spins axially according to its alignment.

Stroking a bar of common iron with a permanent magnet, as shown, causes the 'loose' excess-spiked-neutrons in each atom to align their polarity. Because the nucleus and electron cage of each atom spin differentially the negative tips of the excess spiked-neutrons cut through the electrostatic field that exists between the nucleus and electron cage causing the generation of an associated electromagnetic field around each spiked-neutron and hence each spinning atom. The sum total of each directional magnetic field causes the iron bar to polarise along its length such that one end becomes *permanently* magnetic positive and the other end becomes magnetic negative (one end becomes magnetic north polarity and the other end magnetic south polarity). This suggests that there is no such thing as permanent magnetism. Magnetism (like gravity) is dynamic and generated continuously by spinning atoms. The associated magnetic field is thus *electromagnetic*. Isotopic metals are unique in that surplus spiked-neutrons accommodate the axial alignment of each atomic nucleus. Each *nucleus* thus spins in the same direction. The associated electromagnetic fields, generated by each spinning nucleus, unite to create a combined field along the length of the iron bar.

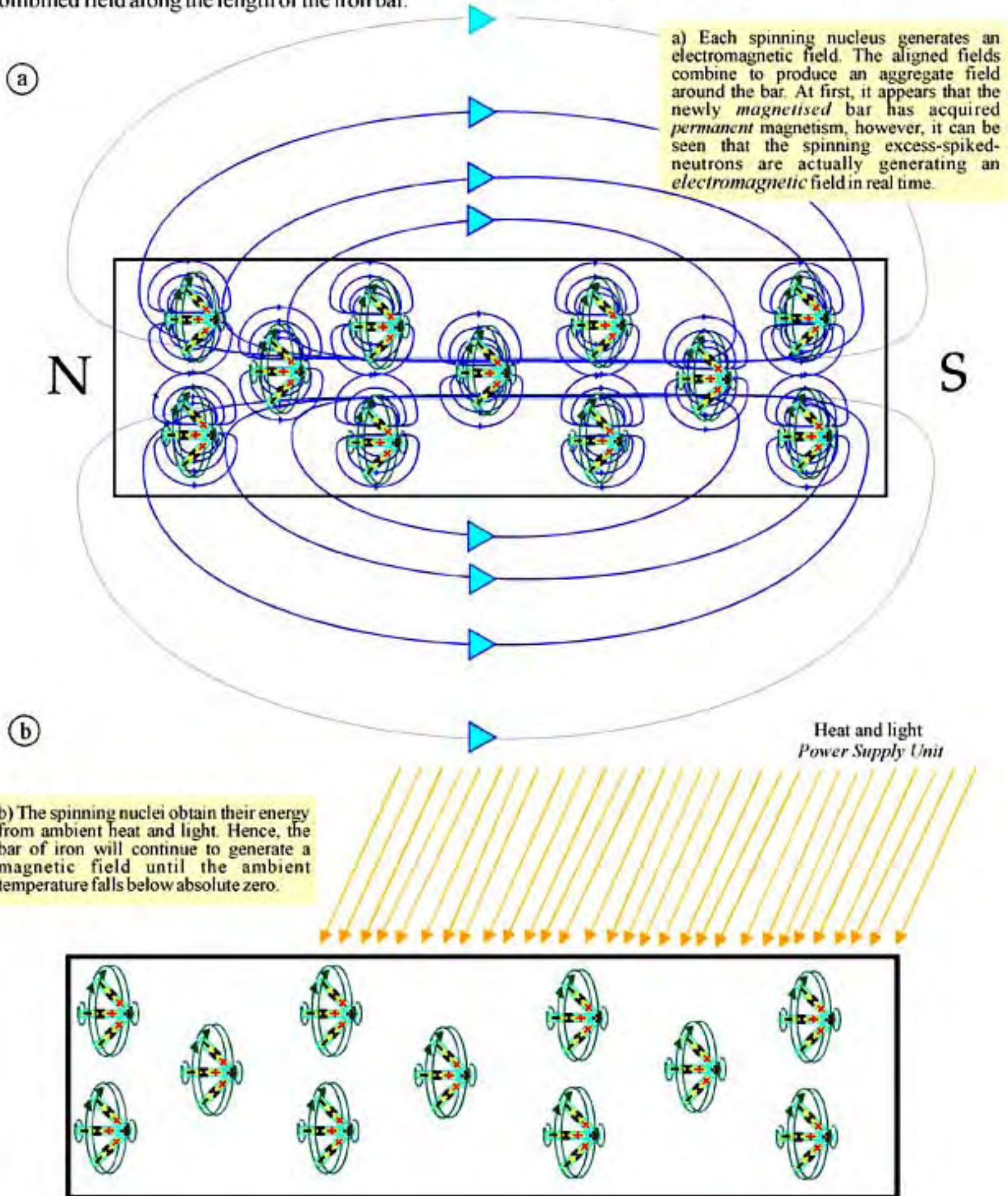


figure 11.

Proof that so-called *Permanent magnetism* is actually *electromagnetism*

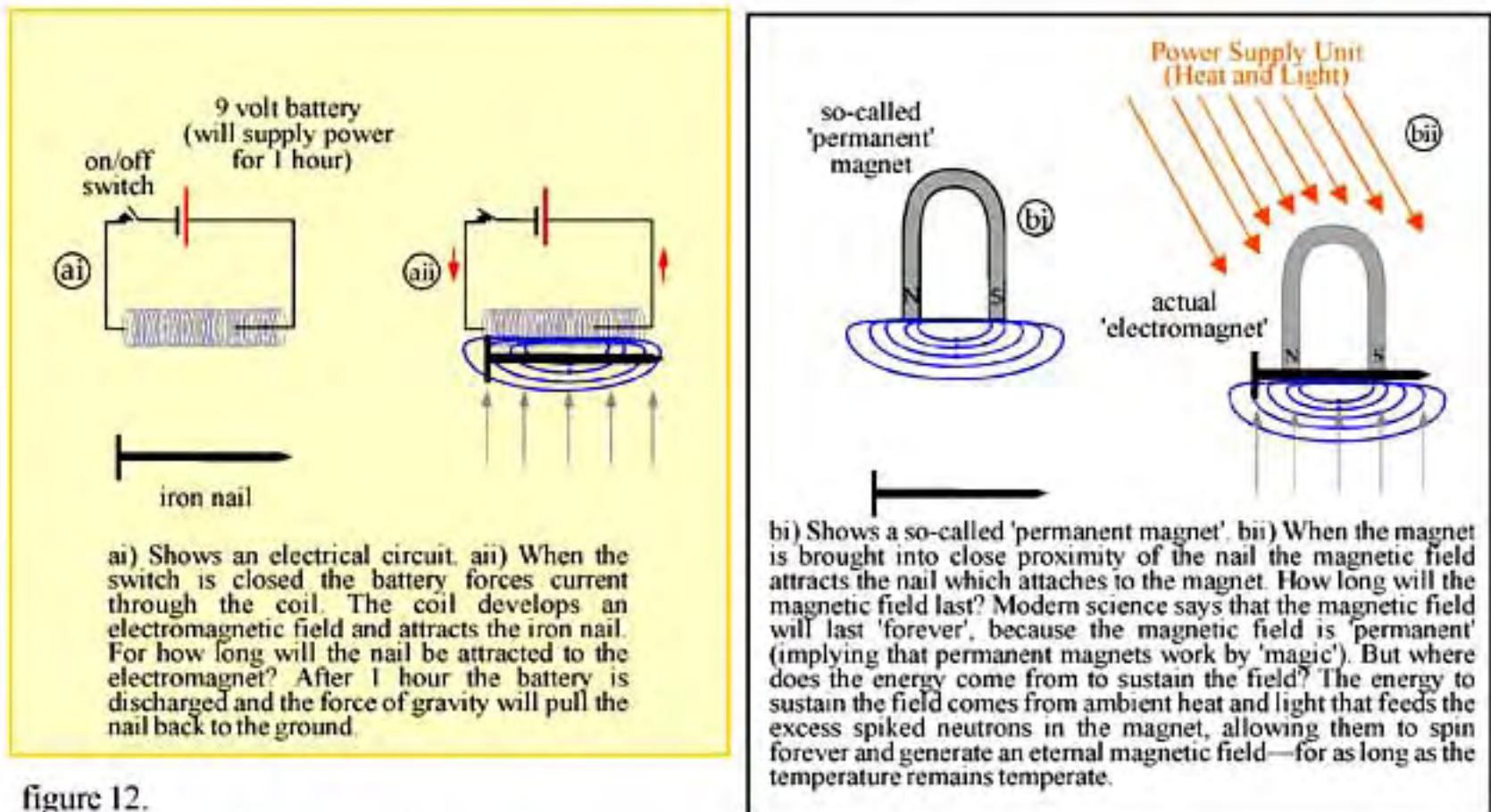


figure 12.

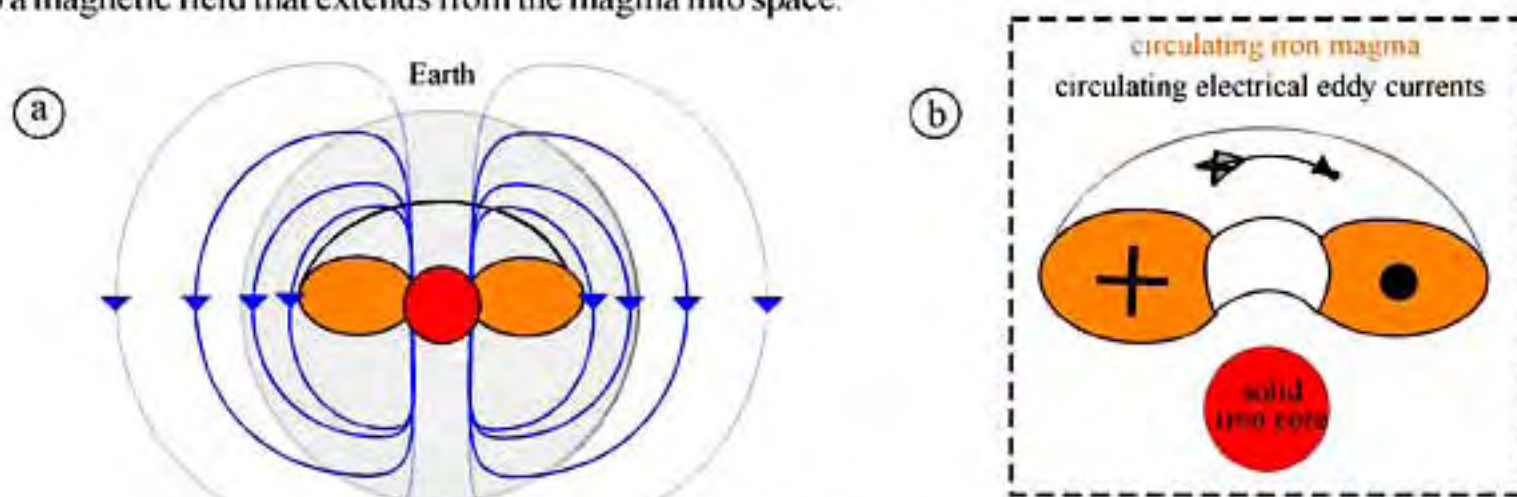
The Reason why Iron Sparks

Magnetic materials are unique in that physical excitation (friction) causes sparks to radiate from the material. When iron rubs or collides against iron a spark may be created, as commonly happens when iron railway carriage wheels rub against the iron track. A spark may also be produced when iron rubs against iron-laden rock. This electrical effect of magnetisable materials does not happen with non-isotopic (non-magnetisable) metals suggesting that the excess-spiked-neutrons are responsible for the electrical activity.

When a piece of iron collides with a piece of iron a potential difference (an electrical voltage) develops between the two pieces. The voltage then causes a convection current to flow through the intervening air producing a spark between the two.

How the Earth's Magnetic Field is Generated

Molten magma in the inner mantle circulates around the solid core. Because more sunlight strikes the equatorial regions of the Earth's surface than polar regions, the molten magma is deepest around the equatorial regions of the spherical Earth than in northern and southern latitudes. The distribution of magma thus established is disc/doughnut shaped [rather than spherical]. The motion of the Earth, spinning on its axis, causes the magma to circulate around the solid core. Heat destroys permanent magnetism, therefore the Earth's magnetic field must be generated electromagnetically. b) The circulating magma must therefore carry an electrical current that gives rise to a magnetic field that extends from the magma into space.



b) Circulating magma, around the solid core, generates electrical eddy currents (indicated by the arrow, the arrow-tip and the arrow-tail) that in turn produces an electromagnetic field around the magma extending out into space (a).

figure 13.

References:

pi; [Opening Paragraph] Rutherford Appleton Labs. Quotation: Sunday Times, 9th March 2008
pi; figure i(f) Science News Online; www.sciencenews.org/page/s/sn_arc99/1_23_99/fob1.htm
piii; figure iii; Hahn-Meitner Institute quotation: Science Daily (Mar. 31, 2008).
p5/II; Nature Magazine, 2009;458 (7238):610 DOI: 10.1038.nature07871 [persistent spin helix].

Epilogue; The Great Gravity Conspiracy

A copy of *How Gravity Works* was sent to the Institute of Engineering and Technology [of which I am a member] in 2007. They replied saying 'Gravity is beyond the scope of the activities of the IET... the Institute of Physics would be a more appropriate place to send your work'. In December, 2007, I sent a copy to Dr Robert Kirby-Harris, the head of the Institute of Physics in London. There was no reply. After two months I wrote requesting a reply. After another three weeks they replied saying 'The Institute of Physics does not publish original research, the Institute of Physics Publishing Ltd [their subsidiary Company] does'. I redrafted the Paper to meet the submission requirements of the IoPP Ltd and mailed two copies to the Editor of the IoP journal *Classical and Quantum Gravity*. They replied, within 20 working hours. They could find no fault whatsoever with the contents of the document but refused to publish it because, they said;

1. '... it is completely new' and
2. '...there is nothing in it that we have been working on'

It was rejected on behalf of the British Institute of Physics by the literary editor of a magazine. They would not even allow experts in the field to see it or peer review it, so afraid are they of the contents. The truth is simple, the orthodox scientific community do not want *you* to understand how gravity works; they are paid billions of dollars annually to search for the cause of gravity, thus defeating any incentive to find one. If they were to accept *How Gravity Works* then funding would stop and an army of physicists and mathematicians would be thrown out of employment overnight. But they fail to appreciate that by subverting the truth they simply invite overseas researchers to leap-frog British Science. Facts do not cease to exist because they are ignored.

In the Summer of 2008 I sent *How Gravity Works* to the Royal Society (UK). They, likewise could find no fault whatsoever with the contents of the Paper, but the magazine editor rejected it because '... it contains no mathematics'.

In August, 2009, the American Association for the Advancement of Science (AAAS) responded by saying 'this is not the sort of work we publish'.

This is the sorry state of so-called *Science* today.

Additional Implications of *How Gravity Works*

Although not covered here [february, 2010] *How Gravity Works* explains;

- how electricity works at atomic level
- that the anti-neutrino does not exist [it is created inside particle accelerators]
- how the three sub-atomic particles—electron, proton and neutron [defined as a half-proton fused to a half-electron]—were made from the first particle [the *genison*].
- how a gravitational field may be generated in space for use by space crews [permitting, inter-alia, fertile females to travel in space beyond the current 28-day limit].
- how to generate unlimited free energy for mankind forever, and
- accommodates a new galaxy-formation theory that explains how galaxies are formed, evolve and die, and a new planetary-formation theory that explains how planets are formed, how they evolve to develop a magnetic field, spin on their axis and orbit larger bodies.