

# Invisible Rainbow: 5G Electromagnetic Radiation and the Evolution of Life on Planet Earth

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Theme: [Environment](#), [Intelligence](#), [Science](#) and [Medicine](#)

*In his recently revised and updated book [The Invisible Rainbow: A History of Electricity and Life](#), scientist **Arthur Firstenberg** has made both science and history comprehensible by explaining the importance and significance to life on Earth of a vital consideration that has long been 'invisible': electricity.*

Indeed, as Firstenberg makes clear, if we want to understand life on Earth, we cannot do so without understanding the role that electricity plays in making life possible, healing it and, if abused, threatening us all.

Firstenberg's book is unusual on at least two counts. Based on decades of scientific research, he carefully explains each point in language accessible to the non-scientist while documenting his case with exceptional clarity and detail complemented by a 138-page bibliography.

If you want to really understand this issue, and what is at stake, you will be doing yourself a favor by reading this book.

## **The Universe, Electricity and Life: In Brief**

As Firstenberg's subtitle promises, his book includes a history of electricity and its role in the Universe but particularly on Earth.

Almost all of the matter in the universe is electrically charged.... The stars we see are made of... charged particles in constant motion. The space between the stars and galaxies, far from being empty, teems with electrically charged subatomic particles, swimming in vast swirling electromagnetic fields, accelerated by those fields to near-light speeds. Plasma is such a good conductor of electricity, far better than any metals, that filaments of plasma - invisible wires billions of light-years long - transport electromagnetic energy in gigantic circuits from one part of the universe to another.... Under the influence of electromagnetic forces, over billions of years, cosmic whirlpools of matter collect along these filaments, like beads on a string, evolving into the galaxies that decorate our night sky.

The Milky Way, the galaxy in which Earth is located, is a medium-sized spiral galaxy that is 100,000 light-years across; it rotates around its center every 250,000,000 earth years, generating around itself a galactic-size magnetic field. Filaments of plasma, 500 light-years long, generate additional magnetic fields.

Our sun, also made of plasma, sends out an ocean of electrons, protons and helium ions in a

steady current called the solar wind. This wind bathes the Earth before diffusing out into the plasma between the stars.

The Earth, with its core of iron, rotates on its axis in the electric fields of the solar system and the galaxy, in turn generating its own magnetic field that traps and deflects the charged particles of the solar wind wrapping the Earth in an envelope of plasma called the magnetosphere. Some of the particles from the solar wind collect in layers we call the Van Allen belts where they circulate 600 to 35,000 miles overhead.

The sun also bombards the Earth with ultraviolet light and X-rays. In addition, atomic nuclei and subatomic particles (known as cosmic rays) shower the Earth from all directions as well. It is these cosmic rays from Space and the radiation emitted by uranium and other radioactive elements in Earth's crust that provide the small ions that carry the electric currents that surround us in the lower atmosphere.

It is within this electromagnetic environment – a fairly constant vertical field averaging 130 volts per meter – that all life, including Homo Sapiens, evolved on Earth.

In fair weather, the ground beneath us has a negative charge and the ionosphere above us a positive charge. 'Electricity courses through the sky far above us, explodes downward in thunderstorms, rushes through the ground beneath us, and flows gently back up through the air in fair weather.' This happens in an endless cycle as about 100 bolts of lightning, each delivering a trillion watts of energy, strike the Earth every second.

*Every living thing is part of this circuit. The current enters our heads from the sky, circulates through our meridians, and enters the earth through the soles of our feet. This current provides the energy for growth, healing, and life itself. See ['Putting the Earth Inside a High-Speed Computer'](#).*

*The strength of the atmospheric electrical current is between 1 and 10 picoamperes (trillionths of an ampere) per square meter. **Dr. Robert Becker** found that 1 picoampere is all the current that is necessary to stimulate healing in frogs.... It is these tiny currents that keep us alive and healthy. See ['Planetary Emergency'](#).*

The fundamental point about all this is simple: The Earth is incredibly delicately balanced with a great many forces making up this balance and thus making life possible.

One of the many ways in which we have been disrupting this balance is by disturbing the global electrical circuit, that evolved over eons and sustains all life, without paying genuine and sincere attention to what we are doing and what this means for the Earth and all of its inhabitants, including us.

Given the profound implications of generating 'electric pollution', some might label this behaviour insane. It is certainly unaware.

## **Human-Generated Electricity on Earth**

It was in 1746 that scientists were finally able to 'capture' electricity so that a start could be made on using it directly for human ends. Sure, the wider implications of its use were not considered but it offered opportunities not previously available. And when the damage from its use, on humans and other living organisms, started and then rapidly picked up pace, the association between the spread of electricity (particularly through the telegraph wires in the

mid-nineteenth century and electric lighting a few decades later) and the adverse health and environmental impacts were not made, or ignored when they were. And so diseases not previously recorded in the medical literature started to appear: anxiety disorder, influenza, diabetes, heart disease and cancer.

But it wasn't just us that was impacted; so were the other living organisms of our planet.

And now we are bathed in the 60-cycle current in our house-wiring; the ultrasonic frequencies in our computers, Wi-Fi routers and modems; the radio waves in our televisions; the microwaves in our cell phones and the electromagnetic radiation generated by everything from baby monitors to 'smart' devices of all kinds, as well as the vast network of satellites, transmission towers and power lines all endlessly but variably impacting, adversely, virtually every human being on Earth. And if 5G is deployed, there will be nowhere on Earth that is safe for humans, insects, birds, animals and plants.

***We will have fundamentally altered the very conditions that made the evolution of life on Earth possible.***

An exaggeration?

Here is the briefest sample of the damage existing human-generated electromagnetic radiation is causing life on Earth.

## **Forests**

Apart from being logged mercilessly, burned down to create cattle or soy farms or palm oil plantations, destroyed by the endless proliferation of mining for various mineral resources including coal and oil, damaged by dam construction, wildlife poaching and the extraction of resources like rayon, viscose and modal to make clothing, and adversely impacted in many other ways, forests are being destroyed by electromagnetic radiation inflicted by humans. While acid rain and global warming have been blamed for much of the 'forest die-off' that has occurred over the past 40 years, the evidence that electromagnetic radiation has been the real, or at least primary, cause is rather overwhelming once the full circumstances of the damage are seriously investigated. While Firstenberg cites many very compelling examples, the case of the Amazon rainforest makes the point rather starkly.



In 2005, it was noticed that trees were dying without obvious cause. This has been blamed on global warming which caused an unusual drought in that year.

However, on 27 July 2002, the US-financed and Raytheon-built System for Vigilance of the Amazon (SIVAM), a \$US1.4 billion system of radars and sensors, began its monitoring activities in a two million square mile area of remote wilderness.

Ostensibly to deprive drug traffickers and guerrillas a safe haven, it also 'required pretending that blasting the rainforest with radiation at levels that were unprecedented in the history of the world was of no consequence to the forest's precious inhabitants, human or otherwise'. So the system's '25 enormously powerful surveillance radars, 10 Doppler weather radars, 200 floating water-monitoring stations, 900 radio-equipped "listening posts", 32 radio stations, 8 airborne state-of-the-art surveillance jets equipped with fog-penetrating radar, and 99 "attack/trainer" support aircraft' can track individual human beings and 'hear a twig snap' anywhere in the Amazon.

Again, at the cost of electromagnetically damaging every living organism in the rainforest.

To reiterate though, the Amazon is not the only forest in the world adversely impacted by electromagnetic radiation with many studies examining the issue, wherever they are conducted, consistently revealing forest damage by electromagnetic radiation from civilian and military installations (and even recovery when, as happens occasionally, the local radiation stops).

## **Insects**

In 1901, Marconi sent the world's first long-distance radio transmission from the Isle of Wight, off the southern coast of England. By 1906 and now host to the greatest density of radio transmissions in the world, the island was almost empty of bees. 'Thousands, unable to fly, were found crawling and dying on the ground outside their hives'. And healthy bees, imported from the mainland, began dying within a week of arrival. 'Isle of Wight disease' was then reported in European countries, South Africa, Australia and North America over following decades with almost everyone assuming it was infectious. Despite various suspected diseases and parasites accused over many decades, each was eventually 'cleared' of causing the problem.



But in the second half of the 1990s, problem again accelerated and acquired the name 'colony collapse disorder' in 2007 as bee populations were decimated in many parts of the world. And despite the resistance of beekeepers (who are largely convinced that infectious diseases are driving bee losses and that toxic pesticides are necessary to kill mites), some scientists were starting to investigate the impact of electromagnetic radiation on bees. The simplest experiments involved placing a cell phone inside a bee hive: 'The results of such experiments, considering the complete denial by our society that wireless technology has any environmental effects at all, have been almost unbelievable.'

'The quickest way to destroy a bee hive, investigators have found, is to place a wireless telephone inside it.' Landmark research conducted originally in 2009 and then subsequently, which involved placing two cell phones in a hive for 30 minutes at a time every few days, demonstrated that electromagnetic fields interfere with cellular metabolism: bees practically could not metabolize sugars, proteins or fats and, as in humans but far more rapidly, their

cells become oxygen starved. Three months, at this modest level of exposure, would destroy a hive.

One particularly nasty development that occurred in the (northern) Winter of 2006-2007 that is considered by some the likely immediate cause of the disastrous colony collapse disorder at the time, is that the US military's HAARP - [High-frequency Active Auroral](#)



[Research Project](#) - in Alaska reached full power with the installation of the last of its 180 antennas at that time. HAARP is the most powerful radio transmitter on Earth and 'turned the ionosphere itself - the life-giving layer of sky to which every creature is tuned - into a gigantic radio transmitter'. Why? HAARP was being used for US military communications, particularly with submarines.

Even in 1988, when HAARP was still being planned, physicist Richard Williams, a consultant to Princeton University's David Sarnoff Laboratory, called the project 'an irresponsible act of global vandalism' given the power levels that were to be used.

In fact, according to other researchers, the HAARP project has also been used to research and develop electromagnetic weapons, such as directed energy beams. See '[HAARP: Secret Weapon Used For Weather Modification, Electromagnetic Warfare](#)'.

But whatever its functions, even though now transferred to the University of Alaska Fairbanks, Ulrich Warnke points out that the frequencies of HAARP superimpose unnatural magnetic fields on the natural resonant frequencies of the sky, the daily variations of which have not changed since life appeared on Earth. This is disastrous for bees because they 'lose an orientation that served them for millions of years as a reliable indicator of the time of day'.

Of course bees are not the only insects adversely impacted by this recent human obsession with electromagnetic radiation. Experiments with other insects, such as ants and fruit flies, again simply using exposure to cell phones rather than any specialized equipment, revealed equally instructive results. A few minutes exposure for a few days, for example, dramatically reduced the reproductive success of the flies. And exposed to phones turned off, in standby mode and then turned on, ants displayed a variety of behaviors including leaving their nest and taking all of their eggs, larvae and nymphs with them.

As an aside, experiments of this nature also revealed 'intensity windows' of maximal effect. This means that 'the greatest damage is not always done by the greatest levels of radiation. Holding your cell phone away from your head may actually worsen the damage.' And even a cell phone that is turned off but has the battery in it, is 'clearly and obviously dangerous'.

## **Birds**

The disastrous effects of radio waves on birds were first noted in the 1930s. It was immediately obvious, for example, to diverse groups of people who worked with pigeons -

those involved in pigeon racing and those still using pigeons for military communications – when the birds lost their way during the rapid expansion of radio broadcasting. But by the late 1990s, as cell phone towers proliferated and vastly greater numbers of birds were unable to fly home, pigeon-racing plummeted compelling pigeon-fanciers to revisit an issue they had earlier set aside. Unfortunately, it was too late. In 1998, shortly after Motorola’s launch of 66 Iridium satellites had begun providing the first cell phone service from Space, 90% of pigeons being raced in various locations in the United States over a two-week period vanished.

Of course, it is not just pigeon populations that are being decimated. Wherever dramatic bird population declines are being studied and electromagnetic radiation is considered as a possible factor (which is not always the case), the results usually reveal a link even if the damaging impact is variable.

**If electromagnetic radiation totally disorients pigeons, how do migratory birds navigate?** Often enough, they don’t.

For example, in 2004, scientists at the University of Oldenburg in Germany were shocked to discover that migratory songbirds they had been studying were no longer able to orient themselves for their migratory journeys. Conducting a simple experiment – surrounding the aviaries of European robins with grounded aluminium sheeting to remove the influence of electromagnetic radiation – the immediate and positive impact ‘on the birds’ orientation capabilities was profound’, they noted in a study published in 2014.

One series of studies was conducted by wildlife biologist **Alfonso Balmori Martínez** in Spain for more than a decade from the 1990s, after noting the dramatic increase in leukemias, cancers, headaches, insomnia, memory loss, heart arrhythmias and acute neurological reactions suffered by people near a new installation of antenn



as adjacent to a local school.

His subsequently published research revealed, among many other points, the following:

- kestrels vanishing from breeding sites after antennas for mobile telecommunications were installed, nest abandonment by storks near the radiation beams from telephone masts,
- rock doves dead near phone masts,
- plumage deterioration and locomotive problems in magpies at points highly contaminated with microwave radiation,
- a dramatic decline in sparrow populations in irradiated areas, which matched a European-wide trend with, for example, sparrows in the UK declining by 75% between 1994 and 2002.

Balmori's conclusion was simple: 'This coincides with the rollout of mobile telephony.'

One of the problems peculiar to birds, already identified by Canadian researchers in the 1960s, is that 'feathers make fine receiving aerials for microwaves'.

By the way, have a ponder what happens when a bird (or animal, reptile, amphibian, fish or even insect, for that matter) is radio tagged so that its behavior can be monitored. It exposes the creatures to immediate radiation, in comparison to that from distant cell phone towers, thus adversely impacting their functioning and altering their behavior! Firstenberg characterized this procedure, politely in my view, as 'scientific folly'. Other scientists have documented many serious, adverse impacts from radio tagging but the practice is far from over with most wildlife scientists simply assuming that tagging has zero impact.

## **Amphibians**

The ongoing serious decline of frogs, toads, salamanders and other amphibians all over the world has been notable since at least the 1980s. Not something you think about?

Well, amphibians have been falling silent for a range of reasons but, once again, electromagnetic radiation is a key one. Notably, even iconic species, such as the famous and highly protected Golden Toad, named for its brightly colored skin and resident of the Monteverde Cloud Forest Preserve in Costa Rica, have gone extinct without any real fight to save them.

Puzzling to most scientists was the fact that amphibians have been vanishing even in 'many pristine, remote environments that they thought to be unpolluted'. And they *were* pristine, except for the 'invisible pollutant' that permeated even these environments: electromagnetic radiation.

Needless to say, the usual range of scientific studies has long since proved that exposure of amphibians to electromagnetic radiation is 'incompatible with [their] survival'.

As Firstenberg notes:

Environmentalists, for the most part, like the rest of modern humanity, have one terrific blindspot: they don't acknowledge electromagnetic radiation as an environmental factor, and they are comfortable with placing power lines, telephone relay towers, cell towers, and radar stations in the middle of the most remote, pristine mountainous locations, never realizing that they are intensely polluting those environments.

The key question is this: Will humanity, and not just environmentalists, wake up to the threat posed by electromagnetic radiation in time?

## **Humans**

In this brief review, I am not going to discuss the extensive evidence of the damage to human health caused by electromagnetic radiation. But there is not a significant, *modern* human disease - diabetes, 'influenza', cancer, heart disease, strokes, obesity... - and a host of other mental and physical ill-effects (including anxiety, memory loss, impaired motor function, attention-deficit, sleep disturbance, reduced lung capacity, higher white cell counts and headaches as well as a disturbed balance in the boy/girl birth ratio) that can be

fully understood without understanding the impact of living in a disturbed electrical environment. Again, Firstenberg spells it out in gruesome detail.

However, to briefly mention two examples: Firstenberg explains how electromagnetic radiation damages the mitochondria - thus inhibiting cellular metabolism - with disastrous consequences for those many individuals impacted. However, they are only rarely medically diagnosed as such. And the effects of radio waves on blood sugar are extremely well documented but none of this research has been done in the United States or western Europe.

As an aside, you might be interested to know that a large, rapid, qualitative change in the Earth's electromagnetic environment has occurred six times in Earth's history, as noted by Firstenberg: in 1889 power line harmonic radiation began (accompanied by the 1889 pandemic of influenza), in 1918 the radio era began (accompanied by the 'Spanish' influenza pandemic), in 1957 the radar era began (accompanied by the Asian flu pandemic), in 1968 the satellite era began (accompanied by the Hong Kong flu pandemic), and twice more coinciding with changes that you can read in the book.

Since a few months before the book was published in February 2020, however, the deployment of 5G technology has been proceeding in earnest, as discussed below. Interesting that during this time people have also been impacted by a 'virus' labeled COVID-19, don't you think?

Anyway, as you probably guessed as well, electromagnetic radiation causes biological damage to fruit trees, crops, farm birds and animals too, with adverse implications for the human food supply (apart from the shocking impact from the mass killing of pollinators such as bees).

### **What is the State of Play Now?**

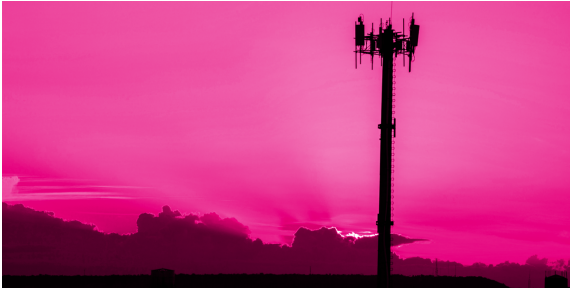
Despite its enormous health hazards and implications for military violence, as well as its potential for intrusive surveillance, which is also extensively documented. See the following important articles:

['How Big Wireless Lobbied Governments to Build 5G for Citizen Data Collection and Surveillance'](#) - and the vulnerability of satellites to cyber attacks with potentially horrific consequences -

[Hackers could shut down satellites - or turn them into weapons'](#) - the deployment of 5G has begun. From the elite perspective, it is critical to implementation of the so-called fourth industrial revolution.

[Techno-Tyranny: How The US National Security State Is Using Coronavirus To Fulfill An Orwellian Vision'](#).





This means that the existing fleet of functional satellites orbiting Earth, which totaled 2,666 on 1 April 2020 – see [‘Satellite Database’](#) – but has already grown by a couple of hundred since then, will be vastly expanded to tens of thousands in the near future.

For example, the Elon Musk corporation [SpaceX](#) has already launched 538 satellites into Space and is planning to launch another 60 every two weeks into the ionosphere. See [‘538 Satellites and Counting’](#). Again: ‘The ionosphere is a source of high voltage that controls the global electric circuit, which in turn provides the energy for life.’

Moreover, on 26 May 2020 SpaceX filed an application with the Federal Communications Commission (FCC) in the USA for 30,000 ‘next-generation’ (‘Gen2’) satellites. ‘If and when [SpaceX’s] [Starlink](#) signs up millions of paying customers, it is possible that nothing will survive – no humans, no animals, and no insects. It is likely that it will be blamed on COVID-19, unless this world wakes up in time.’ See [‘Putting the Earth Inside a High-Speed Computer’](#).

But SpaceX is not the only satellite corporation although it has a large scheme compared to most of its major competitors, except [OneWeb](#) (UK/USA) which submitted a plan to the FCC in the USA on 27 May 2020 for 48,000 satellites.

Some other private corporations or government agencies that have satellite constellations they are planning to expand include [Boeing](#) (USA), [Spire Global](#) (Luxembourg, Scotland, USA), [Iridium](#) (USA), [Orbcomm](#) (USA), [Globalstar](#) (USA), [Telesat](#) (Canada), [Eutelsat](#) (Europe), the [National Aeronautics and Space Administration’s](#) (NASA) Earth Observing System (USA), the Pentagon’s Space Development Agency (USA) with plans for hundreds or potentially thousands of satellites in seven layers – see [‘National Defense Space Architecture \(NDSA\), Systems, Technologies, and Emerging Capabilities \(STEC\)’](#) – the [Russian Satellite Communications Company](#), [GLONASS](#) (Russia) and the [BeiDou Navigation Satellite System](#) (China).

Yet other groups, such as Amazon, are planning major constellations – see [‘Amazon to offer broadband access from orbit with 3,236-satellite “Project Kuiper” constellation’](#) – and Facebook has an experimental satellite license.

In addition, the new corporation [Lynk](#) (USA) has been deploying ‘cell-towers-in-space’ satellites and boasts ‘We will connect all 5.2 billion mobile phones on the planet, everywhere.’ How? ‘Subscribers receive coverage from terrestrial towers when they have it and satellite towers when they need it, all from their existing phone.’

As has been noted before this, the slowly-evolving night sky that creatures from Earth have observed for billions of years will be rapidly obliterated in what will presumably be the first instance of astronomical pollution. Stars visible to the naked eye will vanish from view.

On 23 March 2020, the **‘Secure 5G and Beyond Act of 2020’** became law in the United

States. See [‘Secure 5G and Beyond Act of 2020’](#). It’s purpose?

To require the President [within 180 days] to develop a strategy to ensure the security of next generation mobile telecommunications systems and infrastructure in the United States and to assist allies and strategic partners in maximizing the security of next generation mobile telecommunications systems, infrastructure, and software, and for other purposes.

So 5G technology is now being rapidly rolled out with elite agents in the telecommunications industry advertising bigger and faster downloads. They just don’t mention that it will kill us.

### **‘Why not?’ you might ask. ‘Won’t it kill them too?’**

Yes, but they are insane which, in this case, means that their minds are incapable of paying attention to, and considering, the ‘big picture’ (including all of the ecological and social variables impacted by their decisions) because their focus is on limited imperatives, such as profit. This is why all of those scientific studies that have consistently exposed the extreme dangers of electromagnetic radiation over recent decades have not only been ignored but great effort, including through the corporate media, has been made to prevent public discussion of the impacts based on the knowledge in this research.

For brief explanations of this insanity,

see [‘The Global Elite is Insane Revisited’](#)

and [‘Love Denied: The Psychology of Materialism, Violence and War’](#)

with fuller explanations in [‘Why Violence?’](#) and [‘Fearless Psychology and Fearful Psychology: Principles and Practice’](#).

This insanity is why the global elite, through its corporate and political agents, is endlessly manipulating us into fighting their wars – even dragging us to the brink of nuclear war – destroying the climate and the environment, driving the collapse of biodiversity, and generating a vast range of political, economic and social crises without ever considering the fundamental outcome – its deleterious impact on all life – of their behaviors. 5G is just the latest manifestation of this insanity.

Of course, all of these crises could be resolved if we were dealing with people who were sane. And if most of us were not readily distracted from paying attention to reality.

See [‘The Disintegrated Mind: The Greatest Threat to Human Survival on Earth’](#).

### **Resisting the Deployment of 5G**

Given the military and surveillance implications of 5G, if you think that governments are particularly concerned to investigate and consider the extensive evidence of the enormous hazards of 5G, you might find it sobering to read the dismissive three paragraphs given to the subject in the European Parliament’s official report on 5G.

See [‘5G Deployment: State of Play in Europe, USA and Asia’](#).

The reality, as touched on just above, is that elite interests are shaping what happens. You

still don't think so?

In 2002, Gro Harlem Brundtland, the Director-General of the World Health Organization (WHO) and the former Prime Minister of Norway, ordered people entering her office in Geneva to not carry a cell phone. Why? Because cell phones gave her a headache. The following year Brundtland was no longer the Director-General of the WHO. 'No other public officials have repeated her mistake.'

See [The Invisible Rainbow: A History of Electricity and Life](#).

Nevertheless, the resistance to 5G is rapidly gaining pace with concerned scientists and activists setting the pace. For example, you can see a [List of Cities, Towns, Councils and Countries that have Banned 5G](#).

And if you wish to join those resisting the deployment of 5G, options include signing the [International Appeal: Stop 5G on Earth and in Space](#), supporting legal challenges such as this one in Denmark – see [State of Play and Danish Suing FiveG Network](#) – and simply getting rid of your mobile (cell) phone. See [End Cellphones Here on Earth \(ECHOEarth\)](#).

Moreover, if you wish, you can campaign strategically to halt the deployment of 5G. You can read a list of strategic goals, as well as how to develop a local strategy to prevent/halt the deployment of 5G, at [Nonviolent Campaign Strategy](#).

Separately from this, if you would like to join the worldwide movement of people working to *end all violence*, you can do so by signing the online pledge of [The People's Charter to Create a Nonviolent World](#).

## Conclusion

So what is Arthur Firstenberg's chilling conclusion?

**'You cannot contaminate the global electrical circuit with millions of pulsed, modulated electronic signals without destroying all of life.'**

But, as outlined above, since 'controlling' electricity in 1746, humans have been increasingly contaminating the global electrical circuit and it has culminated in what will now be the final electromagnetic assault on Earth.

Which means that unless we can halt the launch of these 5G satellites and the rollout of the technology 'on the ground' we will be 'destroying all of life'. And while some groups advocate measures to protect ourselves as individuals, inadequate though these must be in the unfolding circumstances, no amount of measures to individually protect ourselves from this electromagnetic radiation will protect 'all of life' in the wild.

According to Ross Adey, the grandfather of bioelectromagnetics and atmospheric physicist Neil Cherry, we are electrically tuned to the world around us and 'the safe level of exposure to radio waves is zero'.

There is virtually no time left to understand and act powerfully on that knowledge. What will you do?

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