



Photo: Rodion Kutsaev, unsplash.com

by Donna Fisher © February 2017
Part 2 of 2

The inescapable conclusion of these findings is that the twentieth century epidemic of the so-called diseases of civilization, including cardiovascular disease, cancer, diabetes and also suicide, was caused by electrification and the unique biological responses we have to it. A large proportion of these diseases may therefore be preventable.

— Samuel Milham, MD,
*Dirty Electricity*⁴⁹

The West Adopted the Wrong Model

Everyone is affected biologically by electromagnetic fields (EMF), from babies and manufacturers to those who do all they can to prevent policy change, going against the precautionary principle of public health: "First, do no harm."

Russia and Eastern European countries have been at the forefront of EMF research for decades, enacting stricter EMF exposure standards than in the West and most European countries.⁵⁰

Current guidelines/safety limits for EMF adopted by governments in most western countries were developed by industry, based on out-of-date research on thermal effects, i.e., the short-term effects, instantaneous heating—the heating of tissue as in a microwave oven. "If it does not heat you, it does not hurt you."

The argument that there are no adverse biological effects from EMF is no longer valid because effects have been documented at levels well below those that are able to heat body tissue. Current guidelines/safety limits based on the



We are drowning in a sea of electromagnetic radiation.
(Photo: Jacob Ufkes, unsplash.com)

thermal effects do not account for non-thermal (athermal) biological effects—the cumulative effects of constant exposure to multiple EMF sources all day and all night.

For example, a country's exposure guideline for ELF EMF can be 1,000 mG units for the public and 5,000 mG units (magnetic field measured with a gaussmeter) for occupational settings. Investigative reports quote that the measurements taken fall within current guidelines/safety limits which are not designed to protect against cancer risks but, rather, shocks and burns. In practical terms, this means that you can be exposed to 999 mG units and the report will state that the exposure is under the guidelines/safety limits.⁵¹ *The BioInitiative 2012 Report*, which addresses biological effects, recommends exposures as low as 1 mG (0.1 microtesla [μT]).⁵²

ELF EMF was classified as a Group 2B carcinogen by the International Agency for Research on Cancer (IARC) in June 2001.⁵³ The IARC "concluded that ELF magnetic fields are possibly carcinogenic to humans, based on consistent statistical associations of high level residential magnetic fields with a doubling of risk of childhood leukaemia".⁵⁴

In regard to RF EMF, since 2007 five studies of cellphone-tower-level radio-frequency radiation (RFR) exposures at intensities ranging from less than $0.001 \mu\text{W}/\text{cm}^2$ to $0.05 \mu\text{W}/\text{cm}^2$ have reported "headaches, concentration difficulties and behavioral problems in children and adolescents; and sleep disturbances, headaches and concentration problems in adults".⁵⁵

Dr Martin Blank makes several statements in *The BioInitiative 2012 Report*, including: "The mechanism involves direct interaction of EMF with the DNA molecule (claims that there are no known mechanisms of interaction are patently false)"; "EMF stimulates stress proteins (indicating an assault on the cell)"; and "EMF efficiently harms cells at a billion times lower levels than conventional heating".⁵⁶

The Environmental Health Trust, led by epidemiologist Dr Devra Davis, states that hundreds if not thousands of studies show adverse health effects from EMF exposure,

such as headaches, sperm damage and many types of cancer including brain cancer. These were "the kinds of studies that led the World Health Organization (WHO) to declare radio frequency radiation [RFR] a Group 2B (possible) Human Carcinogen" in 2011.⁵⁷

Many experts are calling for the vested interests who have infiltrated the organisations installed to protect us to be removed.⁵⁸ Some experts agree that the IARC classification for RF EMF should be upgraded to a Group 1 carcinogen in line with Dr Lennart Hardell's work⁵⁹, based on the science⁶⁰, the cancer cluster study at La Quinta Middle School⁶¹ and the difference in statistics with the Amish who live without electricity.⁶² The current cancer pattern among the Amish is like the cancer mortality pattern of rural US residents before their residences were electrified.⁶³

Many WHO scientists, who served as IARC advisers on RF radiation for the 2011 working group, and other EMF experts now state that additional scientific evidence indicates that wireless radiation should be reclassified as a Group 2A "probable" human carcinogen.⁶⁴

...studies show adverse health effects from EMF exposure, such as headaches, sperm damage and many types of cancer...

Whether or not RF EMF is upgraded to a Group 1 or a Group 2A classification, the concern is that we are now continually immersed in a sea of EMF exposure every day and every night, unlike with ionising radiation. Not everyone is exposed to ionising radiation, i.e., from X-rays, mammograms, CT scans and nuclear bomb fallout, and certainly not every day and every night. Exposure to ionising radiation is cumulative, and a Smart Card has been introduced to monitor patients' radiation dosages. The first meeting dedicated to the Smart Card project was held in Vienna in 2009.⁶⁵

EMF exposure is also cumulative, and no one knows their EMF tipping point. The Copenhagen Resolution of 2010 and the International EMF Scientist Appeal in 2015 called for "White-Zones" (low radiation/radiation-free/low EMF/no EMF zones) to be established.⁶⁶

Cellphone Radiation Causes Cancer

In 1995, Drs Henry Lai and Narendra Singh of the University of Washington, Seattle, reported in the journal *BioElectroMagnetics* that RF EMF could damage DNA in the brain cells of rats. In their study, they used a frequency of 2,450 MHz (2.45 GHz).^{67, 68}

Since then, findings from other studies have indicated a link between long-term mobile phone use and three types of tumours: glioma, acoustic neuroma and parotid gland tumour. The parotid gland—the largest salivary

gland—is located near the jaw and ear, where mobile phones are typically held during use.

In May 2016, the US National Toxicology Program (NTP) released an early report⁶⁹ with partial results of the current study on the carcinogenicity of RF EMF in male and female rats and mice. Senior managers saw the need to release the results as a public health imperative. The NTP findings show that as the intensity of the radiation increased, so did the incidence of cancers: rare brain tumours (gliomas) and nerve tumours (schwannomas). None of the unexposed animals developed either tumour.⁷⁰ An acoustic neuroma is a type of schwannoma. The two types of cancer, glioma and schwannoma, have been found in human studies of cellphone use.⁷¹ With regard to the parotid gland, a rat does not hold a mobile phone to its head!

Dr Ron Melnick, the now retired Senior Toxicologist and Director of Special Programs in the Environmental Toxicology Program at the National Institute of Environmental Health Sciences (NIEHS) of the US National Institutes of Health (NIH), led the team that designed the NTP study. Regarding the draft findings, he states that they "should put to rest the old argument that RF radiation cannot cause DNA damage".⁷² Dr Melnick also states: "This is a major public health concern because the cells which became cancerous in the rats were the same types of cells as those that have been reported to develop into tumors in cell phone epidemiological studies. For this to be a chance coincidence would be truly amazing."⁷³ He further notes: "The NTP tested the hypothesis that cell phone radiation could not cause health effects and that hypothesis has now been disproved. The experiment has been done and, after extensive reviews, the consensus is that there was a carcinogenic effect."⁷⁴

The researchers controlled the temperature of the animals to prevent heating effects, so the cancers were caused by a *non-thermal* mechanism. The NTP study signals were designed to mimic human exposure to mobile phone radiation.⁷⁵

According to Dr Melnick: "[E]very known human carcinogen induced tumours in animals when adequately tested. Animals are used as models in toxicity and carcinogenicity studies because it is unethical to intentionally expose humans to agents that might cause an adverse health effect such as cancer that has a long latency period between exposure and manifestation of disease."⁷⁶

The International EMF Scientist Appeal's statement on the NTP study that cellphones cause cancer reads: "This \$25 million study, executed by the US government, provides support for what we are stating in the 'International EMF Scientist Appeal' that precautionary approach should be exercised and lower electromagnetic field exposure guidelines should be set."⁷⁷

Dr Samuel Milham in *Dirty Electricity* discusses the first

long-term, low-level animal study of non-thermal microwave exposures conducted in the United States. He attended a 1984 meeting of The Bioelectromagnetics Society where a research group from the University of Washington, Seattle, headed by Dr William Arthur Guy, presented the results of a \$4.5-million study conducted for the US Air Force. One of the slides showed 18 cancers in the 100 exposed rats, but only five cancers in the 100 sham-exposed controls. A quick calculation told Dr Milham that this difference was "very unlikely to have happened by chance". In the experiment, the exposures were to non-thermal levels of pulsed and modulated RF at microwave frequencies (2,450 MHz). He comments that even today this group refuses to acknowledge in its interpretation that "this well-done study showed RF microwave exposure to be a potent animal carcinogen".⁷⁸



Babies, children and pregnant women are particularly vulnerable to EMF emissions from electronic devices.
(Photo: Chippy, umpcportal.com)

The Menace of EMF and Dirty Electricity

As Dr Milham points out: "Since 1900, there has been a gradual increase in mortality rates of cancer, cardiovascular disease, diabetes, and suicide, the so-called diseases of civilization. This is in sharp contrast to the gradual decline in the death rate from all causes, which was reflecting increasing control of infectious diseases."⁷⁹

In the preface to *Dirty Electricity*, Dr Milham explains: "When Thomas Edison began wiring New York City with a direct current [DC] electricity distribution system in the 1880s, he gave us the magic of electric light, heat and power, but inadvertently opened a Pandora's Box of unimaginable illness and death."⁸⁰ In 1893, Nikola Tesla demonstrated the first alternating current (AC) power system for the distribution of electricity, which was to



Telephone switchboard operators working in 1952.
(Photo: Seattle Municipal Archives, Washington, USA)

claim dominance and spread around the world.

In the early 20th century, the first known people adversely affected by EMF were telegraph line installers and telephone switchboard operators. In 1907, Bell switchboard operators went on strike in Toronto, Canada, because of their mysterious illness. The symptoms included nerve disorders (neurasthenia or nervous asthenia), depression, extreme anxiety, exhaustion, convulsions, unconsciousness, rashes and a host of other malaises. Following World War II, with increasing use of radio and microwave frequencies, by the 1950s radar operators were suffering from symptoms similar to those of the telephone switchboard workers—symptoms that were called "radio wave or microwave illness".⁸¹

As Dr Milham observes: "Very recently, new research is suggesting that nearly all the human plagues which emerged in the twentieth century, like common acute lymphoblastic leukemia in children, female breast cancer, malignant melanoma and asthma, can be tied to some facet of our use of electricity".⁸² For instance, before 1960 in Sweden, the asthma level was essentially zero or very low. Statistics indicate that a drastic change in environmental conditions happened around or before 1960 and the rate of asthma increased dramatically, as did the melanoma skin cancer rate.⁸³ In fact, in 1955 FM radio and TV transmitters were introduced to allow for FM radio and TV reception.⁸⁴

While conducting his research over several decades, Dr Milham noticed "a strong positive correlation between residential electrification and mortality for some adult cancers, including female breast cancer, in the 1930 and 1940 vital statistics".⁸⁵ On further research, Dr Milham concludes that he would consider "male breast cancer a sentinel cancer for EMF exposure like mesothelioma is a sentinel for asbestos exposure". He reports on an

epidemic of male breast cancer at the Marine Corps Base Camp Lejeune in North Carolina. The Marines had identified 55 male breast cancer cases and thought they were "caused by solvent contamination of drinking water at the base". Dr Milham comments: "While there are studies that link solvents with a few cancers, the more likely culprit is EMFs."⁸⁶ Dr Magda Havas submitted testimony to the Workplace Safety and Insurance Appeals Tribunal in 2008 for female employees of Bell Canada in a workplace breast cancer cluster.⁸⁷

In mid-2008, Dr Havas labelled environmental diabetes as "'Type 3' diabetes".⁸⁸ This refers to cases of diabetes where the blood sugar level is also affected by an environmental trigger such as dirty electricity. Dr Milham states: "Magda Havas has shown that dirty electricity raises blood glucose levels and changes insulin requirement in diabetics. The blood glucose connection could be how dirty electricity increases cardiovascular disease incidence. The major mortality and morbidity in diabetics is due to acceleration of cardiovascular diseases."⁸⁹

In 2009–10, Dr Milham's ground-breaking study was published on the history of electrification in the USA.⁹⁰ Dr Milham researched when 48 states of the USA were electrified. He also compared the urban populations that lived with electricity with the rural areas that did not have electricity, which led to the inescapable conclusion that the 20th-century epidemic of so-called diseases of civilisation, including cardiovascular disease, cancer, diabetes and also suicide, was "caused by electrification and the unique biological responses we have to it".⁹¹

...the first known people adversely affected by EMF were telegraph line installers and telephone switchboard operators.

Dr Milham states that the health and mortality effects of electrification happened so gradually and on such a wide scale that they went virtually unnoticed, and the major illnesses that can be attributed to them came to be considered "normal" diseases of modern civilisation. Dr Milham writes in the study: "It seems unbelievable that mortality differences of this magnitude could go unexplained for over 70 years after they were first reported and 40 years after they were noticed."⁹² He comments: "The data to prove this has been available since 1930, but no one investigated it."⁹³

Nationally in the USA, Dr Milham notes, "...the total cancer rate in 1930 was 58.8 percent higher in urban than in rural areas. This pattern indicates that the twentieth century epidemic of cancers and cardiovascular diseases was not caused by lifestyle variables as is commonly assumed, but rather by EMF exposure, and probably dirty

electricity (Milham, 2010⁹⁴). The price we have paid for the convenience of electricity in morbidity and mortality since the early 1900s almost defies quantification."⁹⁵

However, "the Electromagnetic Age" grew rapidly, even though the US Naval Medical Research Institute showed over 100 effects in its 1972 publication "Bibliography of Reported Biological Phenomena ('Effects') and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation".⁹⁶

It was not until 1979 that concern about EMF became more prominent on the release of the Wertheimer-Leeper study.⁹⁷ Dr Milham comments: "By the time EMF epidemiology began in earnest in 1979, the entire population was exposed to EMFs. There was then simply no way to find an unexposed control group; therefore, all studies were potentially biased."⁹⁸

Dr Milham explains that from the onset of the electrical grid, electrified populations have been exposed to dirty electricity—RF EMF—due to the grid's inherent design. He says it is possible that some of the effects attributed to magnetic fields (mG units) from electricity come from transients. "Magnetic fields may, therefore, be a surrogate for dirty power exposures."⁹⁹ The technical term for dirty electricity is "high-frequency voltage transients".¹⁰⁰ The electricity industry also uses the terms "dirty power" and "harmonic pollution".

Regardless of where the RF EMF that penetrates our body comes from, whether from electrical wiring in the home, school or workplace or from wireless technologies, our exposure and proximity to this RF EMF increased dramatically as the 20th century progressed. In the 1970s, manufacturers changed to energy-efficient appliances which created higher levels of dirty electricity. Many of the electronic devices which generate magnetic fields also inject dirty power into the utility wiring. Today we hold microwave transmitters—mobile phones—against our head and in our pocket without thinking of the consequences, not only for ourselves but for the developing foetus, in particular the eggs of the female foetus. The younger the person, the greater the effect.

Commenting on the alarming conclusion of Robert O. Becker, MD, that "60-Hz magnetic fields cause human cancer cells to permanently increase their rate of growth by as much as 1600 percent and to develop more malignant characteristics"¹⁰¹, Dave Stetzer, an expert in poor power quality, suggests that this increased growth rate would have been due to the presence of dirty electricity.¹⁰² In 1990, when Dr Becker's book was published, research on dirty electricity was very much in its infancy.

Stetzer attended the International Conference on Electromagnetic Fields and Human Health in September 2003 in the Republic of Kazakhstan. There he presented his findings and those of his colleague Dr Martin Graham, Emeritus Professor of Electrical Engineering and Computer Science at the University of California,

Berkeley, on dirty electricity.¹⁰³ Two months later, the Head State Sanitary Physician of Kazakhstan issued sanitary-epidemiologic norms addressing the 1.0–400 kHz frequency range (RF EMF). A limit of 50 GS [Graham–Stetzer] units—industrial—was mandated to protect workers.¹⁰⁴

Stetzer explains that at 1.7 kHz all this electromagnetic energy dissipates internally in the body and the electrons are excited and start to oscillate at the same rate. This is one reason why the Russians have different guidelines that change at 2 kHz.¹⁰⁵ Most laptops and computers generate 12.5–50 kHz, while printers, photocopiers, PlayStations and most electronic equipment generate 10–100 kHz. The non-ionising frequency range extends from Hz to kHz to MHz to GHz to THz.



Children's exposure to computers and wireless technologies should be kept to a minimum. (Photo: Lucélia Ribeiro, flickr.com)

Dr Vladimir Kozlovsky, a Professor of Medicine and the Science Deputy Director of Infracos-Ecos in Almaty, Kazakhstan, compiled a list of norms that need to be in place to limit children's exposure to computers based on their age. He recommends that "children younger than 7 years be exposed to no more than 5 minutes, primary school children to no more than 10 minutes, 5th grade and older children to be limited to 30 minutes per day, and that teenagers older than 16 years limit their computer exposure to less than 3 hours daily ... [and] pregnant women not be exposed to computers at all".¹⁰⁶

Dr Milham notes that dirty electricity "...helped explain the fact that professional and office workers, like the school teachers, have high cancer incidence rates. It also explained why indoor workers had higher malignant melanoma rates, why melanoma occurred on part[s] of the body which never are exposed to sunlight, and why melanoma rates are increasing while the amount of sunshine reaching earth is stable or decreasing due to air pollution."¹⁰⁷

In the report on their La Quinta Middle School study,

Dr Milham and Lloyd Morgan "... postulate that the dirty power in the classroom wiring exerted its effect by capacitive coupling which induced electrical currents in the teachers' bodies... High frequency dirty power [dirty electricity] travels along the electrical distribution system in and between buildings and through the ground. Humans and conducting objects in contact with the ground become part of the circuit."¹⁰⁸

World Health Organization and EMF Exposure

In its "Electromagnetic fields and public health: Electromagnetic hypersensitivity" backgrounder dated December 2005, the WHO states: "For some time a number of individuals have reported a variety of health problems that they relate to exposure to EMF. While some individuals report mild symptoms and react by avoiding the fields as best they can, others are so severely affected that they cease work and change their entire lifestyle. This reputed sensitivity to EMF has been generally termed 'electromagnetic hypersensitivity' or EHS."¹⁰⁹

The WHO report on EHS accepts that even though symptoms differ from individual to individual, the most commonly experienced symptoms which afflicted individuals attribute to EMF exposure include "dermatological symptoms (redness, tingling, and burning sensations) as well as neurasthenic and vegetative symptoms (fatigue, tiredness, concentration difficulties, dizziness, nausea, heart palpitation, and digestive disturbances)". The WHO report adds: "The symptoms are certainly real and can vary widely in their severity. Whatever its cause, EHS can be a disabling problem for the affected individual." As all people are not the same, each person may experience different symptoms with different levels of exposure.¹¹⁰

However, the WHO maintains that "EHS has no clear diagnostic criteria and there is no scientific basis to link EHS symptoms to EMF exposure".¹¹¹

Dr Havas elaborates: "[N]eurasthenia, radio wave illness and electrohypersensitivity are one and the same. However, neurasthenia is classified as an illness in the WHO list of diseases and EHS is relegated to idiopathic environmental illness, which basically means we don't know the cause."¹¹²

The 2015 International EMF Scientist Appeal states that the WHO continues to maintain that there is insufficient evidence to justify lowering the quantitative exposure limits. The Appeal was signed "...to encourage the



World Health Organization (WHO) to exert strong leadership in fostering the development of more protective EMF guidelines, encouraging precautionary measures, and educating the public about health risks, particularly risk to children and fetal development. By not taking action, the WHO is failing to fulfil its role as the preeminent international public health agency."¹¹³

In January 2017, Olga Sheean released a report, "World Health Organization: Setting the standard for a wireless world of harm..."¹¹⁴, stating that the WHO is "failing to protect its global citizens from this pervasive pollutant in four key ways": industry infiltration; intentional ignorance; denial of the science; and disregard for humanity.¹¹⁵ A former international civil servant and brain-tumour survivor who is also electrosensitive, Sheean has begun gathering signatures to demand the

replacement of the WHO's International EMF Project's industry-biased director, an electrical engineer with no medical or health credentials.¹¹⁶

Sheean states that in early 2017, the WHO's EMF Project is expected to deliver its "Radio Frequency Fields: Environmental Health Criteria Monograph (RF EHC)".¹¹⁷ She says that the draft monograph is incomplete and is missing important chapters and information.¹¹⁸ When the final monograph is published, it will be considered to be authoritative and used by many countries in setting standards.

Protecting the Body Electric

All living cells, in fact whole living beings, are dynamic, coherent, electrical systems reliant on bioelectricity for life's most basic metabolic processes. Electrical rhythms in our brain can be influenced and altered by external signals—altered informational content—which can swamp natural electromagnetic cues and result in dysregulation and desynchronisation of normal biological rhythms that direct growth, development, metabolism and repair mechanisms to maintain health. EMF alters the electrical signalling which directs the chemical messaging system in the brain. As the brain directs all body processes, physical and mental disorders result from EMF exposure.¹¹⁹

Our body and brain operate on inherent, natural, subtle signals, beneficial information which is dependent on exquisitely timed internal cues and life-promoting signals with information from Nature. It is critical to life that this relationship remains intact. EMF is a human-made signal

that also contains information. Peak millisecond radiation bursts have an impact on our body at the cellular level. Cells provide energy and safeguard DNA. The overall activity of a living creature depends on the total activity of all the individual cells: if your cells function poorly, then tissues and organs will become compromised. Biological systems of the heart, brain and gut are dependent on the cooperative actions of cells.

The Environmental Health Trust notes: "Experimental research shows chronic exposure to wireless reduces brain cells and causes brain cell death in the memory and learning centers of the brain. Cell phone radiation has also been shown to alter brain activity in humans. In 2011, NIH research found just 50 minutes of a wireless transmitting device (cell phone) next to the brain increases glucose in the part of the brain most exposed. Preliminary 3G and 4G research has further shown that non-thermal levels of this radiation alter the brain's electrical activity."¹²⁰

According to *The BioInitiative 2012 Report*: "If the blood-brain barrier is vulnerable to serious and ongoing damage from wireless exposures, then we should perhaps also be looking at the blood-ocular barrier (that protects the eyes), the blood-placenta barrier (that protects the developing fetus), the blood-gut barrier (that protects proper digestion and nutrition), and the blood-testes barrier (that protects developing sperm) to see if they too can be damaged by RFR."¹²¹

Lessening exposure to EMF is vital for our wellbeing today but also for future generations, as EMF is known to enhance the damage from other toxic agents.¹²²



Nikola Tesla (1856–1943),
photographed c. 1896.

As paediatric neurologist Dr Martha Herbert warns: "We see *de novo* mutations, which [are] mutations that the babies have that the parents don't have, and that can be caused from genetic damage."¹²³

Extrapolated figures suggest that by 2017, 50 per cent of the population may be affected by exposure to EMF. "With enough exposure, it is possible that EHS could manifest in all members of the population. Many children are affected but undiagnosed. They are more likely to develop EHS since their exposure is higher and their systems are developing."¹²⁴

British physician Erica Mallery-Blythe, MD, clarifies: "EHS is a cumulative, exposure-triggered condition, and exposures are rising rapidly... If EHS is unmanaged and there is general deterioration, there will be reaction to an increasingly broad range of frequencies at increasingly low intensities, i.e., the number of devices complained of triggering symptoms will increase and symptomatic distances will decrease. Tendency towards MCS [multiple chemical sensitivity] will also increase and irreversibility will become more likely."¹²⁵

Everyone is electrically sensitive. Some people are *hypersensitive*. The threshold varies depending on each individual. EHS is recognised as a functional impairment in Sweden.¹²⁶

Dr Havas, considered the world's leading EMF expert, states: "Putting Wi-Fi in schools; allowing cordless phones that radiate constantly to be manufactured; placing wireless baby monitors near an infant; using a wireless tablet, smart phone or computer while pregnant; holding a cell phone next to the head and keeping a cell phone in a bra or hip pocket or under a pillow; placing cell phone antennas near homes, schools and on hospitals; metering electricity, water and gas with wireless smart meters and designing smart appliances for the home will be viewed by future generations as dumb technology generated by greed for a population that is largely ignorant of the consequences. We need to protect the health and wellbeing of future generations, because without them there is no future! If we don't do it...who will?"¹²⁷

Towards Safer Technologies

Instrumental in giving us the ability to use our sophisticated technologies today, Nikola Tesla also unknowingly gave us a solution. Tesla warned against the use of X-rays and also pondered what effects the generation of electricity would have on humans. In 1899 he discovered scalar energy, which he termed "radiant



LG Electronics launched its first appliances embracing "smart grid-ready" technologies on 19 April 2011 in Seoul, South Korea. (Photo: LG, flickr.com)

Continued on page 78

The EMF Plague Part 2 of 2

Continued from page 25

energy", and reputedly dedicated much of the rest of his life to utilising this energy for therapeutic purposes.

Tesla learned how to harness scalar energy from one transmitter to another without using any wires, and he planned to adopt scalar energy as the preferred carrier wave for all telecommunications.

Physicist Albert Einstein's colleague Dr Elie Cartan coined the term "torsion"¹²⁸, and Einstein confirmed the existence of scalar waves in the 1920s and documented how they could be used. Today these "torsion fields" are also called "Tesla waves". Many corporations use the name "Tesla" in honour of his genius.

In acknowledging this serious public health issue through all levels of society, human intelligence can shine through and new ideas will usher in safer technologies for a new technological age. Optical fibre is already in use, employing light to transmit data. Scalar waves, as opposed to radio waves and microwaves, are now being utilised in communications and medical applications. Eventually, scalar wave technologies will become a part of our whole way of living.¹²⁹

Imagine a world where there is no electrosmog and there are no harmful effects on life on Earth...

About the Author:

Donna Fisher is the author of four books on EMF: *Silent Fields: The Growing Cancer Cluster Story* (2008; reviewed in NEXUS 15/06); *More Silent Fields: Cancer and the Dirty Electricity Plague* (2009; 17/01); *Dirty Electricity and Electromagnetic Radiation* (2011; 18/04); and *Light that Heals: Energy Medicine Today & Beyond* (2014; 22/01). Part one of her article "The EMF Plague" was published in NEXUS vol. 23, no. 2. Her article "Dirty Electricity and the Link to Cancer" was published in NEXUS vol. 16, no. 6. Donna Fisher is currently assisting women in a workplace breast cancer cluster, and also lectures to doctors and health professionals, educators, occupational health and safety officers and union representatives. She can be contacted by email at donna@donnafisher.net. For more information, visit her website <http://www.donnafisher.net>.

Editor's Note:

Endnotes attached

Endnotes

49. Milham, Samuel, MD, MPH, *Dirty Electricity: Electrification and the Diseases of Civilization*, iUniverse, Bloomington, Indiana, 2012, 2nd ed., p. xiv
50. Adams, R.L. and Dr R.A. Williams, Defense Intelligence Agency, "Biological Effects of Electromagnetic Radiation (Radiowaves and Microwaves) Eurasian Communist Countries (U)", prepared by U.S. Army Medical Intelligence and Information Agency, Office of the Surgeon General, March 1976, <http://tinyurl.com/hy4hau8>;
Marha, K., J. Musil and H. Tuha, *Electromagnetic Fields and the Life Environment*, Institute of Industrial Hygiene and Occupational Diseases, Prague, Czechoslovakia, 1968, San Francisco Press Inc., Berkeley, CA, 1970 (English translation from Czech)
51. *Microwave News*, "RMIT Cancer Cluster Survey: 'No Anomalies'", 25 May 2006, <http://tinyurl.com/jd887jd>
52. Bionitiative 2012, Section 24, Key Scientific Evidence and Public Health Policy Recommendations, IV. Recommended Actions, A. Defining new exposure standards for ELF, p. 18, <http://tinyurl.com/znvwoup>
53. *Microwave News*, "IARC Finds ELF EMFs Are Possible Human Carcinogens", Vol. XXI, No. 4, July/August 2001, <http://tinyurl.com/hr2qymo>
54. IARC, "IARC finds limited evidence that residential magnetic fields increase risk of childhood leukaemia", Press Release No. 136, 27 June 2001, <http://tinyurl.com/hstgbuk>;
WHO, "Electromagnetic fields and public health: extremely low frequency fields and cancer", Fact Sheet No. 263, October 2001, <http://tinyurl.com/z8mrkm2>
55. BioInitiative 2012, Section 1, Summary for the Public (2014 Supplement), F. Evidence for Effects from Cell Tower-Level RFR Exposures, March 2014, <http://tinyurl.com/z8syzkq>
56. BioInitiative 2012, Conclusions Table 1-1 (Genetics and Neurological Effects Updated March 2014), Stress Proteins and DNA as a Fractal Antenna for RFR, Blank, 2012, Section 7, <http://tinyurl.com/j4kz92f>
57. EHT, "The Five Fallacies of the Electromagnetic Radiation Exposure Limits", <http://tinyurl.com/j6hgk8h>
58. BioInitiative 2012, "What's New? BioInitiative Working Group Issues a 'No Confidence' Letter to the WHO EMF Program Manager", 19 December 2016, <http://www.bioinitiative.org/whats-new-2/>
59. For example: Hardell, Lennart and Michael Carlberg, "Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones", *Rev. Environ. Health* 2013; 28(2-3):97-106
60. Personal conversation with Dr Martin Blank, May 2015
61. Milham, Samuel, MD, MPH, and L. Lloyd Morgan, BS, "A New Electromagnetic Exposure Metric: High Frequency Voltage Transients Associated with Increased Cancer Incidence in Teachers in a California School", *American Journal of Industrial Medicine* 2008; 51:579-586, <http://tinyurl.com/hkf4sa9>;
personal correspondence with Samuel Milham, MD, May 2015
62. Personal correspondence with Samuel Milham, MD, May 2015
63. Milham, S., "Rejected Cancer Causes and Control Letter: Low cancer incidence in Amish living without electricity", <http://tinyurl.com/jqf9ccq> (letter rejected by the journal *Cancer Causes and Control*; Milham, *Dirty Electricity*, p. 78)
64. EHT, "WHO/IARC Position On Wireless And Health", point 7, <http://tinyurl.com/gw6leyd>
65. International Atomic Energy Agency, "IAEA Calls for Enhanced Radiation Protection of Patients", 29 April 2009, <http://tinyurl.com/jvbh9hf>
66. "Copenhagen Resolution: Regarding the shadow-side of the Wireless Society", 9 October 2010, <http://tinyurl.com/hhl5sp6>;
EMFscientist.org, <http://tinyurl.com/hb453fx>
67. *Microwave News*, "NTP: Cell Phone RF Breaks DNA: Consistent with Higher Tumor Counts 20 Years After Landmark Lai-Singh Study", 6 & 8 September 2016, <http://tinyurl.com/zsx7sdd>
68. Lai, Henry and Narendra P. Singh, "Acute low-intensity microwave exposure increases DNA single-strand breaks in rat brain cells", *BioElectroMagnetics* 1995; 16(3):207-210, <http://tinyurl.com/zbnddva>
69. Wyde, Michael et al., "Report of Partial Findings from the National Toxicology Program Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd:Sprague Dawley® SD Rats (Whole Body Exposures)", draft report of 19 May 2016, posted online on 26 May 2016, <http://tinyurl.com/helts7f>
70. Environmental Health Trust (EHT), "NIH National Toxicology Program Cell Phone Radiofrequency Radiation Study", <http://tinyurl.com/j4gq8rj>
71. EHT, "NTP Toxicology And Carcinogenicity Studies Of Cell Phone Radiofrequency Radiation Slide Presentation Results", <http://tinyurl.com/zflr6n9>
72. *Microwave News*, "NTP: Cell Phone RF Breaks DNA...", op. cit.
73. *Microwave News*, "Cell Phone Radiation Boosts Cancer Rates in Animals; \$25 Million NT Study Finds Brain Tumors...", 25 May 2016, <http://tinyurl.com/hesvugr>
74. *ibid.*
75. EHT, "NIH National Toxicology Program Cell Phone Radiofrequency Radiation Study", op. cit.
76. *Microwave News*, "Setting the Record Straight on NTP Cell Phone Cancer Study: Ron Melnick Corrects 'Misinformation'...", 10 June 2016, <http://tinyurl.com/zjxdddpr>

77. <http://www.EMFscientist.org>
78. Milham, op. cit., pp. 49-50;
Guy, A.W., C.K. Chou, L.L. Kunz, J. Crowley, and J. Krupp, "Effects of long-term low-level radiofrequency radiation exposure on rats", US Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas, TR-85-64 Final Report, August 1985;
personal correspondence with Samuel Milham, MD, February 2017
79. Milham, *Dirty Electricity*, op. cit., p. 71
80. op. cit., p. xi
81. Havas, Magda, PhD, "The disease of 'modern' civilization...neurasthenia", 21 December 2014, <http://tinyurl.com/h2p8gro>
82. Rees, Camilla and Magda Havas, "Public Health SOS: The Shadow Side of the Wireless Revolution – 110 Questions on Electromagnetic Pollution from a Forum at the Commonwealth Club of California", Wide Angle Health, 2009, p. 7, <http://tinyurl.com/hnt3w87>
83. Hallberg, Örjan and Olle Johansson, "Cancer Trends During the 20th Century", *Journal of the Australasian College of Nutritional and Environmental Medicine* 2002 Apr; 21(1):3-8, <http://iddd.de/umtsno/cancertrends.pdf>
84. Stop UMTS!, "Skin Cancer FM", 10 June 2014, <http://tinyurl.com/jdhyksl>
85. Milham, op. cit., p. 54
86. op. cit., pp. 46, 45
87. Havas, M., PhD, "Breast Cancer and Occupational Exposure to Electromagnetic Fields. Report to the Workplace Safety and Insurance Appeals Tribunal", 18 November 2008, <http://tinyurl.com/jx2k9od>
88. Havas, M., "Dirty Electricity Elevates Blood Sugar Among Electrically Sensitive Diabetics and May Explain Brittle Diabetes", *Electromagn. Biol. Med.* 2008 Jun; 27(2):135-146, <http://tinyurl.com/zxqc8vo>, <http://tinyurl.com/25r94tz>;
Havas, M., "Diabetes and Electrosensitivity", March 2010, <http://tinyurl.com/hcb7g9f>
89. Milham, op. cit., p. 80
90. Milham, S., "Historical evidence that electrification caused the 20th century epidemic of 'diseases of civilization'", *Medical Hypotheses* 2010 Feb; 74(2):337-345, <http://tinyurl.com/j2t9aoq>, <http://tinyurl.com/he9lyn2>
91. Milham, *Dirty Electricity*, p. xiv
92. Milham, "Historical evidence...", op. cit., p. 345
93. Milham, *Dirty Electricity*, op. cit., p. xi
94. Milham, "Historical evidence...", op. cit.
95. Milham, *Dirty Electricity*, op. cit., p. 76
96. Glaser, Zorach R., PhD, "Bibliography of Reported Biological Phenomena ('Effects') and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation", US Naval Medical Research Institute, Research Report No. 2, 20 April 1972, available at <http://tinyurl.com/gq2pxb7>
97. Wertheimer, N. and E. Leeper, "Electrical Wiring Configurations and Childhood Cancer", *American Journal of Epidemiology* 1979; 109(3):273-284, <http://tinyurl.com/zrrnw2m>
98. Milham, op. cit., p. xiii
99. Milham and Morgan, op. cit., p. 586
100. Transients are large, very brief increases in voltage—distortions in the sine wave that occur when electrical equipment is switched on and off, interrupting the electrical current flow. Transients have the effect of creating a high-frequency signal that is superimposed on the 50–60 Hz signal, creating "parasitic oscillations" that ride on top of the existing 50–60 Hz power supply.
101. Becker, Robert O., MD, *Cross Currents: The Promise of Electromedicine, the Perils of Electropollution*, Tarcher, New York, 1990, p. 206
102. Personal conversation with Dave Stetzer, 2011
103. Maret, Karl, MD, MEng, "Report on the Travel to Almaty, Kazakhstan...September 4–12, 2003", pp. 14-15, <http://tinyurl.com/hw9osy8>
104. Head State Sanitary Physician of the Republic of Kazakhstan, "Permissible levels of high-frequency electromagnetic pollutions' voltage in a wires [sic] of industrial frequency alternating current: Sanitary-epidemiologic norms", No. 69, 28 November 2003, <http://tinyurl.com/hbjdq3u>
Author's note: The GS (Graham–Stetzer) unit was not in use at the time that these guidelines were published. In point 2, no. 5, "50 millivolts" should read "50 GS units".
105. Personal conversation with Dave Stetzer, February 2017
106. Maret, op. cit., p. 12
107. Milham, "Historical evidence...", op. cit., p. 337
108. Milham and Morgan, op. cit., pp. 585-586
109. WHO, "Electromagnetic fields and public health: Electromagnetic hypersensitivity", Backgrounder, December 2005, <http://tinyurl.com/opwdvr2>
110. *ibid.*
111. *ibid.*
112. Havas, M., "The disease of 'modern' civilization... neurasthenia", op. cit.
113. <http://www.EMFscientist.org>
114. Sheean, Olga, "World Health Organization: Setting the standard for a wireless world of harm – A call for action and accountability", 30 January 2017, <http://tinyurl.com/htynm7k>
115. op. cit., p. 2
116. <https://olgasheean.com/who-emf/>;
also December 2014 letter to the WHO team leader by Lennart Hardell, MD, PhD, and Michael Carlberg, MSc, <http://tinyurl.com/zj57nzb>
117. WHO, "Electromagnetic fields (EMF)", 4 August 2016, <http://tinyurl.com/obmqpn3>
118. Sheean, op. cit., p. 11
119. Personal correspondence with Dr Magda

Havas, 2015

120. EHT, "Research On Wireless Health Effects: Neurotoxic Effects", <http://tinyurl.com/z9h6m5a>;
- Volkow, Nora D., MD, Dardo Tomasi, PhD, Gene-Jack Wang, MD, et al., "Effects of Cell Phone Radiofrequency Signal Exposure on Brain Glucose Metabolism", *JAMA* 2011 Feb 23; 305(8):808-813, <http://tinyurl.com/jd33svm>
121. BioInitiative 2012, Conclusions Table 1-1 (Genetics and Neurological Effects Updated March 2014), The Blood-Brain Barrier is at Risk, <http://tinyurl.com/j4kz92f>
122. Juutilainen, J., T. Kumlin and J. Naarala, "Do extremely low frequency magnetic fields enhance the effects of environmental carcinogens? A meta-analysis of experimental studies", *Int. J. Radiat. Biol.* 2006 Jan; 82(1):1-12, <http://tinyurl.com/zoso35h>

123. Dr Martha Herbert's comment in *Generation Zapped* trailer, <http://www.generationzapped.com>
124. Sheean, op. cit., "Appendix 1: Electromagnetic hypersensitivity (EHS): excerpts from a summary by Dr Erica Mallery-Blythe", p. 47
125. Mallery-Blythe, Dr Erica, "Electromagnetic Hypersensitivity: A Summary", Working Draft, Version 1, December 2014, p. 2, <http://tinyurl.com/zzknuvp>
126. op. cit., p. 63
127. EMFScientist.org, Science & Policy, Expert EMF Scientist Quotations, <http://www.emfscientist.org>
128. Murphy, Brendan D., "Junk DNA: Doorway to Transformation", *NEXUS Magazine*, vol. 19, no. 5, August–September 2012
129. Meyl, Konstantin, *Scalar Wave Transponder*, INDEL GmbH, Villingen-Schwenningen, Germany, 2011, 3rd ed.