EMR - Electro Magnetic Radiation

A public lecture given by Robert Anderson PhD (Length: 23 pages and 30 slides)

Sadly, Robert died on 5 December 2008.

N.B. Some facts and figures may have changed since the lecture was presented.

The "EMR – Electro Magnetic Radiation" lecture was presented throughout New Zealand from 2002 onwards.



Friends - I want to dedicate this talk to Professor Neil Cherry. Dr Cherry was an invited speaker at the annual conference of the Royal New Zealand College of GP's Environmental Network Group in Taupo this year (2002). He entitled the lecture, "EMR, a ubiquitous genotoxic mutagenic carcinogen."

At the time, I thought, *What does that all mean*? The OED suggested this. Ubiquitous = everywhere. Genotoxic = can break down DNA. Mutagenic = capable of causing genetic mutation. Carcinogen = causing cancer.

It was not until I had listened to Neil's lecture that I realised how accurate that description was and what a vast cover-up of information had taken place from the telephone and electrical industries to governments.

Dr Cherry is a world authority on Electro Magnetic Radiation - EMR. He has researched this subject intensely for most of his distinguished career. Unfortunately, we may be losing this great soul to motor neuron disease.¹

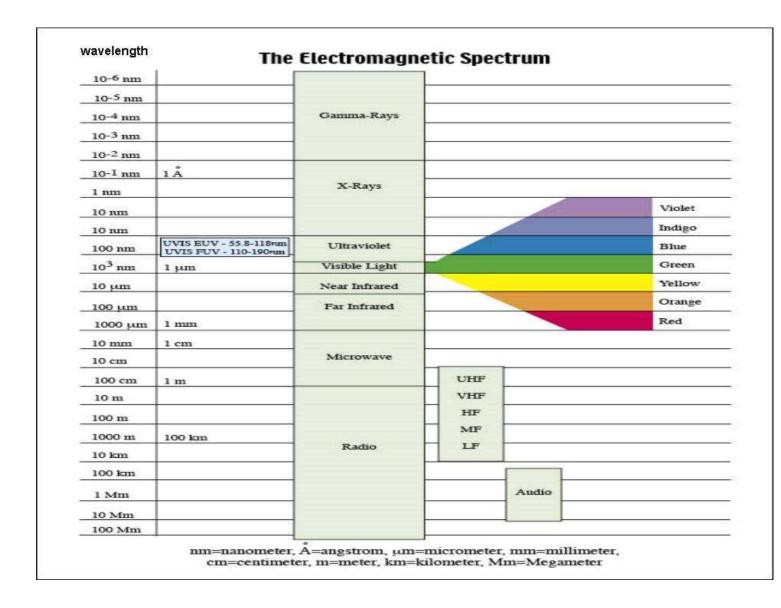
But the most important point is that his life's work is not hidden away. It must be promulgated by as many of us as possible. As I said, I dedicate this talk to Neil and I hope that it will leave you a little more informed than when we began.

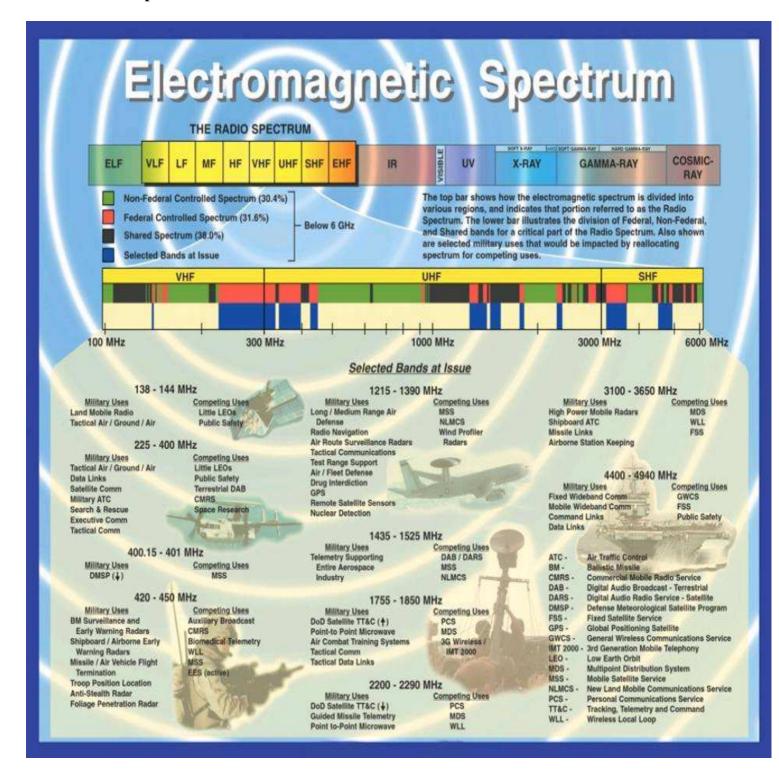
So where can we start on this vast subject?

A sensible point would be the Electro Magnetic Spectrum. We've all seen a rainbow. This represents only a fraction of the Electro Magnetic Radiation spectrum. It is the small part our eyes are sensitive to. In contrast, bees see into UV - Ti white v lead hives.

¹ Neil Cherry died on 24 May 2003.

Slide 2 - EMR spectrum





Electrification of homes began to take place from 1920 onwards and this process continued at an increasing rate as radio and other 'convenient' electrical appliances, devices, etc. were added to homes and cities; all soon seen as essential to modern-day living.

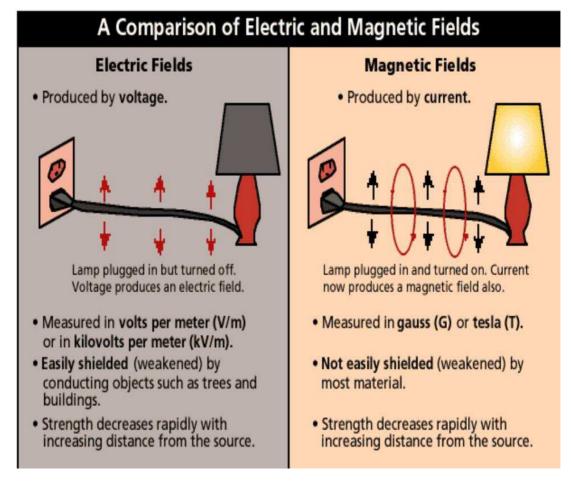
In this, the 21st Century, we live in a veritable 'sea' of electro magnetic radiation created by electrification.

I want to take you back to June of 1995. That was when Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) presented an alarming report to that country's Standards Association (SAA).

Slide 4

The SAA was told that even low levels of EMR are damaging to human health. Let us look at one simple

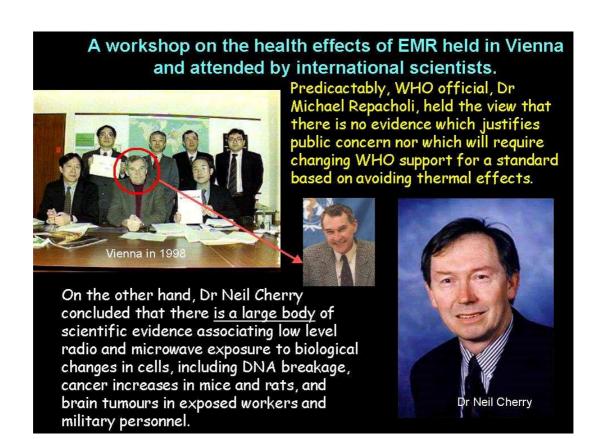
example.



At the time, the Standards Committee was considering a new directive for acceptable levels of radiation called the DR95 900 report. This draft standard dealt with exposure levels in the radiofrequency and microwave parts of the spectrum. The Committee were told that these new proposed levels were considered dangerously high.

Slide 5





I will quote you a small section of a letter sent to the Standards Institute of Australia by Senator Robert Bell, addressed, "Dear Mr McAlpine (p 41 of "Electro magnetic exposure – A secret Agenda").

"As a result of this report both Telecom and Optus (much to their credit) withdrew their support for the proposed changes. They also said that in the light of the CSIRO report they saw no reason to increase existing levels. The Department of Defence, however, voted in favour of increasing exposure levels."

As we saw on Slide 5, the committee chairman and architect of the DR95 900 protocols was Dr Michael Rapicholi and he took a vote of 9 out of 20 as approval. Against great opposition, he pushed these new standards through. Why was this? From leaked information, reports suggest that a secret agenda existed and that agenda came from a Committee at the Department of Defence.

If Telecom and like companies see no reason to increase the acceptable radiation levels, why do we need higher levels? Because many of the army and defence force communications systems require high power?

Another project which must play a part is establishing and/or upgrading systems to surround the world with low-orbit satellites for a global mobile phone system. This system would enable us to call anywhere in the world using mobile phones. Instead of transmitting to a nearby phone tower, your cellphone would transmit directly to an overhead satellite. Such a phone requires greater transmitting power than that provide by most existing systems. At first sight, this may seem to be a valuable system to have in place. Unfortunately, the price may be too high.

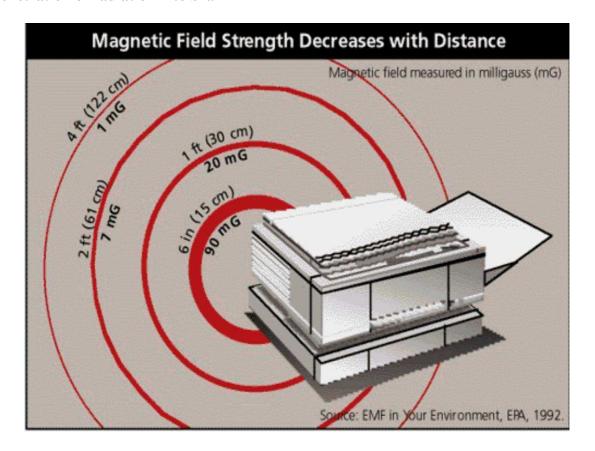
So are mobile phones really safe? The industry has looked at 'heating effects' to the brain of cellphone users. But, as we shall see, this is the least of our worries.

Scientists have discovered that

- a call lasting just two minutes can alter the electrical activity of a child's brain for up to an hour afterwards, and
- radio waves from mobile phones penetrate deeper into the brain of a child than an adult.

This study prompted leading medical experts to question whether it is safe for children to use mobile phones. Let me show you a disturbing slide that Professor Cherry shared with me.

Slide 7 - Penetration of radiation into brain



Doctors fear that disturbed brain activity in children could lead to psychiatric and behavioural problems or impair learning ability. Dr Gerald Hyland, of Warwick University in England, led the research team, and said, and I quote: He found the results "extremely disturbing."

"It makes one wonder whether children, whose brains are still developing, should be using mobile phones at all. These results show that children's brains are affected for long periods, even after very short-term use. Their brain wave patterns are abnormal and stay like that for a long period. This could affect their mood and ability to learn in the classroom if they have been using a phone during break time, for instance. We don't know all the answers yet, but the alteration in brain waves could lead to things like a lack of concentration, memory loss, inability to learn and aggressive behaviour. Previously it had been thought that interference with brain waves and brain chemistry stopped when a call ended. The results of the study by the Spanish Neurological Research Institute coincide with a new survey that shows 87 percent of 11- to 16-year-olds own mobile phones and 40 percent of them spend 15 minutes or more talking each day on them. And a disturbingly 70 percent said they would not change the use of their phone even if advised to."

Dr Hyland's report was published in *The Lancet*¹.

He went on to say: "This information shows there really isn't a safe amount of mobile phone use. We don't know what lasting damage is being done by this exposure. If I were a parent, I would now be extremely wary about allowing my children to use a mobile even for a very short period. My advice would be to avoid mobiles."

It may be of interest to note the following for those using the mobile phone system.

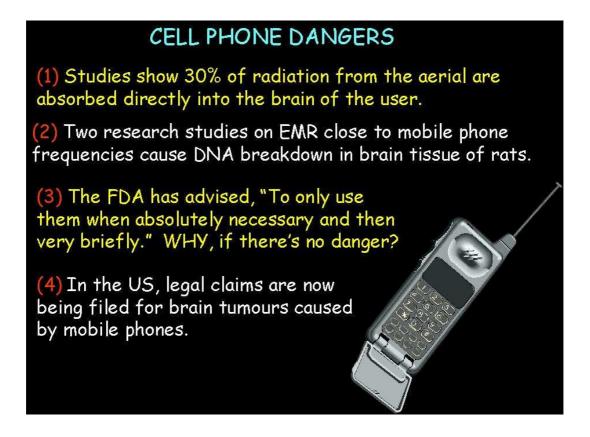
¹ The leading independent peer-reviewed general medical journal: Physics and Biology of Mobile Telephony, Dr G Hyland, the *Lancet*, November 2000, TheLancet.com. Also by Dr Hyland, a report commissioned by the STOA (Scientific and Technical Option Assessment) Programme of the European Union Directorate General for Research, 'The Physiological and Environmental Effects of Non-ionizing Electromagnetic Radiation,' published by the European Parliament in March 2001. http://europarl.eu.int/stoa. Dr Cherry also addressed the European Parliament on EMR; http://www.neilcherry.com.

Slide 8 - Cell phone dangers



Yes, because we accept and often adopt Australia's standards, New Zealanders also became exposed to radiation levels five times higher than previously.

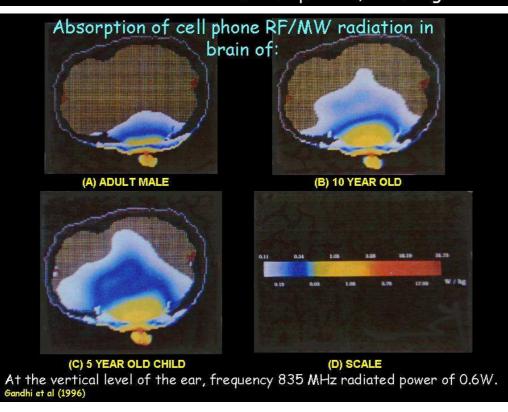
Slide 9



With reference to the last item, I would like to show you some information which is surfacing closer to home.



The danger to children, who are now increasingly using mobile phones, is even greater.

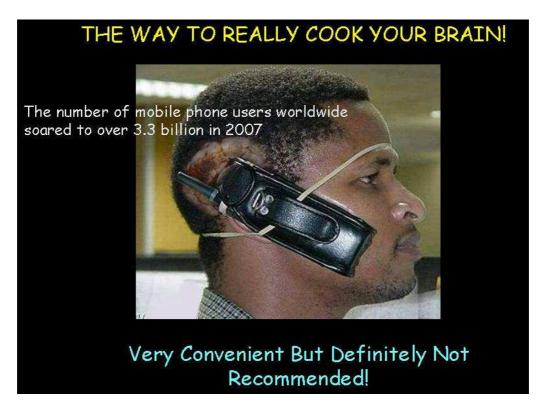


I would like to pass on to you some of a report referring to cancer specialist, Dr Andrew Davidson of Freemantle Hospital. He said data from the Western Australia Cancer Registry showed the incidence of brain tumours was 6.4 cases per 100,000 head of population for males and 4.0 cases per 100,000 head of population for females in 1982, rising to 9.6 for males and 6.5 for females a decade later; a significant increase. "It is conjectured that the rise in incidence is related to the use of analogue mobile phones in the late 1980s," he wrote in a letter to the *Medical Journal of Australia*. Dr Davidson said he wanted to do a retrospective study on mobile phone use by brain tumour patients, but, a year after repeatedly asking phone company, Telstra, whether it could co-operate, he had still received no reply. A Telstra spokesperson said no record had been found of correspondence from Dr Davidson, but a search was continuing.

Additional information: By the end of 2013, there will be more mobile devices on Earth than people (Source: Cisco, 2013). See more current facts on mobile phone use on http://digby.com/mobile-statistics/.

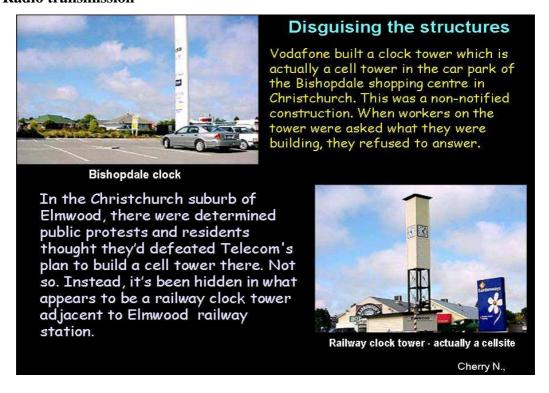
¹ See also (Australian) Daily Mail, 6 January 1998

Slide 12



Moving on from cellular phones - how about radio transmissions? Are they risk-free? Is it harmless radiation in which we are all liberally bathed? It is interesting to look at the dramatic increase in cancer since we began generating the high volume of radio transmissions currently in use.

SLIDE 13 - Radio transmission

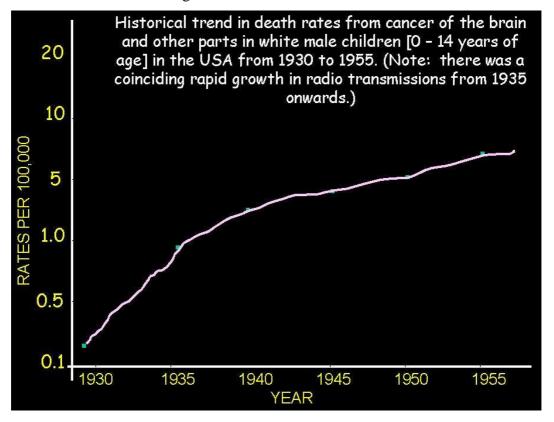


There was an application put into my local Council for a cell phone tower less than 100 metres from my home. My wife would have been looking at it every time she worked at the kitchen sink. Local residents protested - strongly. When the 'protest' was presented at a Council meeting, the Council chamber was packed with concerned citizens, as was the hall and stairs approaching the chamber. We citizens refused the Mobile Phone Company offer of a plastic palm tree to disguise the tower and Council threw out the application in the face of such strong public objection.

Slides 14 and 15

The historical trend in death rates - per 100 000 head of population - from cancer of the brain and other parts, in white male children up to 14 years of age, from 1930 to 1955, is revealing.

Rapid radio transmissions started increasing from about 1935 onwards.

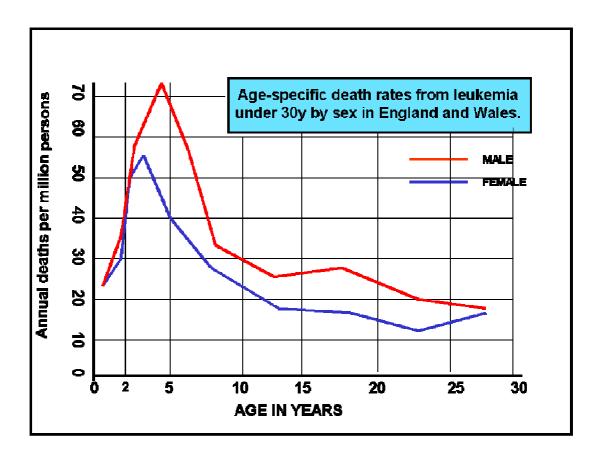


I will mention here that if you want statistics, the US keep fairly accurate, long-term records.

As well as Dr Cherry, Dr Marjorie Lundquist, an Environmental Physicist from Wisconsin, discovered that the localised electromagnetic fields surrounding radio transmitters are candidates for the huge increase in childhood leukaemia. I quote what she had to say (p 46, 'The Radio Wave Cancer Connection'):

"The rise in childhood brain cancer in non-white children closely coincides with the rural-to-urban population shift of the non-white population which took place in the middle of the 20^{th} Century. The childhood brain cancer data therefore seem to indicate that a new hazardous agent had established itself in the city – but not the rural – environment of the US by 1930. This hazardous agent was able to affect large numbers of white children without delay because they were already present in the city environment; but non-white children were not initially affected because they were concentrated in rural areas. However, as the shift of the non-white population from rural to city areas took place, non-white children began to be affected, also; and when both populations were pre-dominantly city, the children of both population groups were thereafter affected in the same manner."

Let us look at Dr Cherry's Age-specific death rates from childhood leukaemia



The 2–4 year old early childhood leukaemia peak occurs in both the United States and the United Kingdom; a severe and frequently fatal childhood cancer.

A common source of EMR pollution are power lines and leukaemia is also elevated in residents living near radio and TV towers.

The link between electromagnetic fields and leukaemia is overwhelmingly supported by epidemiological studies (NIEHS 1999).

Is this avoidable? Can we do something to save the lives of these children? We can do something about this if governments accept the overwhelming scientific evidence and change legislation.¹

There is movement around the world to stop the building of homes under power lines.

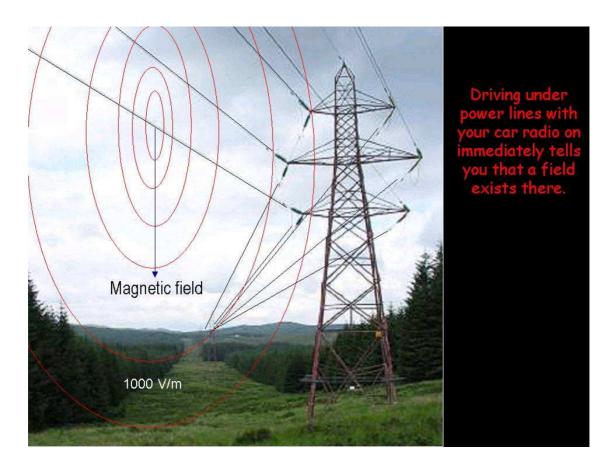
I know a farmer who – when he left his "in-calf" cows in a paddock in which stood a power pylon and across which power lines ran, he had a very high percentage of cows not reaching full term and of deformed calves.

You may also be interested to know that a few weeks ago the Canterbury Council proposed that EMR should be lodged in the Resource Management Act (RMA) as a dangerous pollutant.

¹ See the Report of the Stakeholder Advisory Group on Extremely Low Frequency Electric and Magnetic Fields (SAGE), April 2007, www.leukaemia.org.

It may help here if I explain how the field around a conductor originates.

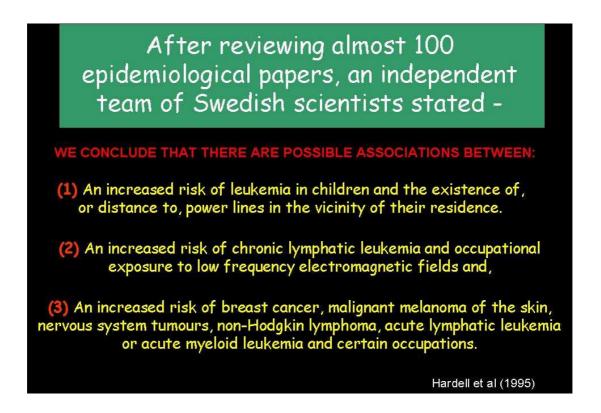
Slide 17



A great deal of work has been done in Sweden and the UK on this problem. And there is now ample evidence from studying children living beneath such installations that cancer is more common among them than in similar populations not living under power lines.

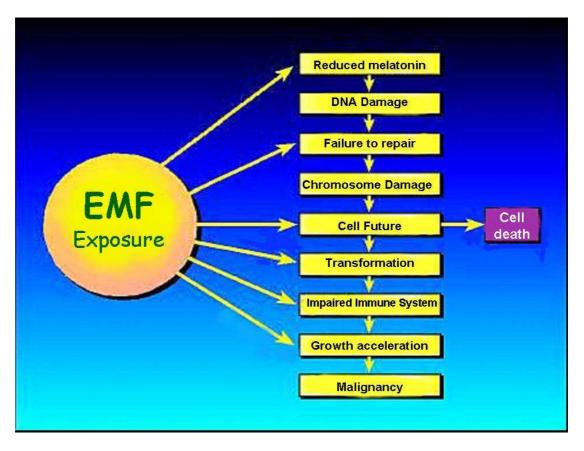
British scientists, Dr Alan Preece and Dr Dennis Henshaw, also studied the incidence of cancer near high voltage power lines. They found a high incidence of lung cancer in zones created by wind-driven, positively charged aerosol particles. Their work is of immense importance as it further establishes links between high voltage power line exposure and childhood leukaemia. Their work adds considerable weight to the statement made by Dr Henshaw that, "There is a clear case for a moratorium on building houses near high voltage power lines."

Slide 18



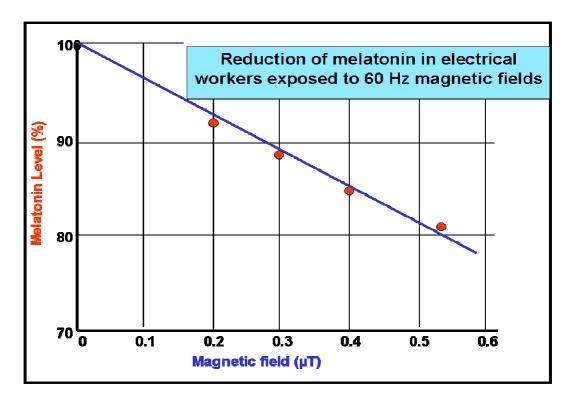
Do we know why these harmful effects arise?

One of the most compelling is the fact that Extreme Low Frequency fields, ELF's as we call them, seriously effect our melatonin levels. Many experimental animal studies have shown ELF reduces melatonin. Since melatonin is a primary endocrine hormone all vital organs, brain, the central nervous system, heart, lungs, etc., have melatonin receptors. Hence, anything effecting melatonin levels will affect organs throughout our bodies.



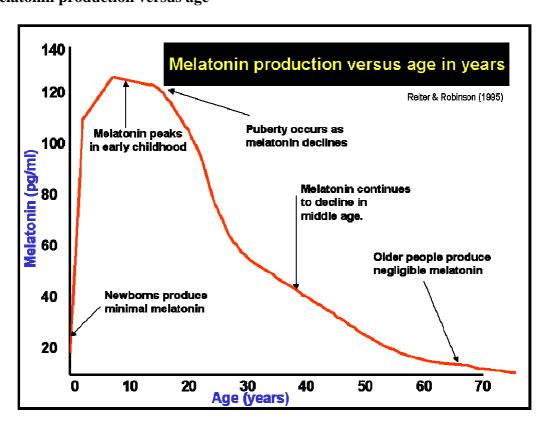
Let me show you the effect on workers in the electrical field.

Slide 19 – Workers exposed to 60Hz



You can see on the graph a dramatic drop in melatonin level as the field increases. Not only is melatonin affected, but so are other cell functions. Calcium ions and neurotransmitters such as melatonin oscillate at frequencies affected by ELF fields. Taken together, the evidence overwhelmingly indicates that electric and magnetic fields alter the normal functioning of the human cell. Melatonin levels also affect the health of the immune system. Thus the most vulnerable members of society are the very old and very young, and those with impaired immune systems. The following slide illustrates the age-related effect.

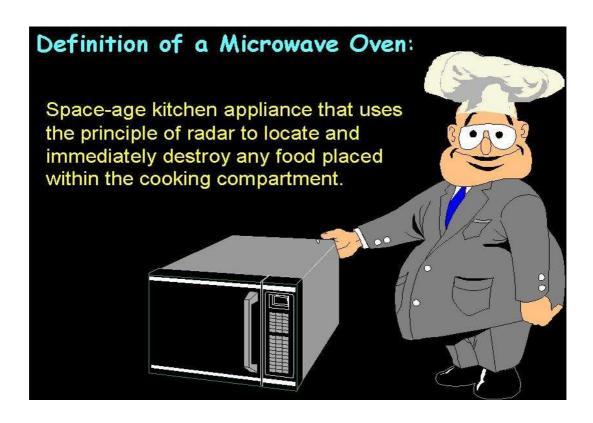
Slide 20 - Melatonin production versus age



We come now to the food issue. What about microwaves? After all, millions of folk worldwide cook meals using microwave ovens.

By the way, in case you do not know the definition of a microwave oven, it goes something like this:

Slide 21



Fast food outlets take advantage of the convenient microwave oven. So... are microwave ovens dangerous in the same way as other forms of EMR? Research says yes. Food 'cooked' in a microwave oven undergoes severe molecular damage. When eaten, it causes abnormal changes in human blood and the immune system.

Not surprisingly, the public have been denied details on these health dangers. After all, what would happen to the industry if the public did know? It's the same story as the industry covering up cell-phone and other EMR damage. Let me tell you about a lawsuit fought in Oklahoma

A woman named Norma Levitt had hip surgery, only to be killed by a simple blood transfusion because the nurse "warmed" the blood in the microwave oven. Logic suggests that, if heating or cooking is all there is to it, then it does not matter how the blood is warmed. Wrong. Certainly, blood for transfusion is normally warmed, yes, but *not* in a microwave oven. In the case of Mrs Levitt, micro-waving altered the blood and it killed her. Does it not therefore follow that this form of heating does indeed do "something different" to the substance being heated? Is it not prudent to determine what that something might be?

A funny thing happened on the way to the bank with all that money made by selling microwave ovens. Nobody thought about the obvious. Only 'health nuts' - constantly aware of the value of nutrition - gave this any thought.

Now let me show you an example of how the industry keeps this knowledge from its public. This is very important because the same principles apply to genetically engineered food, irradiated food, pharmaceutical drugs, you name it, and it is common to all forms of industrial PR.

Enter journalist Tom Valentine. While driving home he hears on the car radio a warning put out by the US equivalent of New Zealand's Plunket Society that guides the care of our infants. In this case it was broadcast by the Extension Service of the University of Minnesota.

The warning was: Do not heat a baby's bottle in a microwave. It can cause slight changes in the milk.

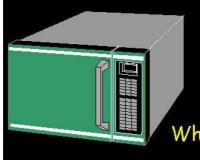
Tom reasoned, if an established Institute like the University of Minnesota can warn about the changes in microwaved milk, somebody knows something about micro-waving they are not telling everybody else. Valentine looked for the source of this information. And he found it.

In a small town near Basel in Switzerland, there lived a food scientist, Hans Hertel. This man became alarmed at the way food is constantly denatured by food companies. He was, in fact, fired from a large international Swiss food company because he questioned their procedures.

Hans Hertel decided to do a study on microwaved food. He was the first scientist to carry out a quality study on the effects of micro-waved food on the blood and physiology of human beings. (And the only scientist, as far as I am aware at this point.) The time? The early 1990s.

Hertel worked with Professor Bernard Blanc of the Swiss Federal Institute of Technology and the Department of Biochemistry. He not only conceived of the study but was one of the participants in it. He took two groups of participants: one he fed only on microwaved food, and the other only conventional food. After the meals he would then take extensive blood tests for analysis.

Let us have a good look at what they found.



RESEARCH SHOWS THAT MICROWAVE OVEN-COOKED FOOD SUFFERS SEVERE MOLECULAR DAMAGE.

When eaten, it causes abnormal changes in our blood and immune system.

These changes include a decrease in all haemoglobin and cholesterol values...

Lymphocytes (white blood cells) also show a more distinct short-term decrease following the intake of microwaved food....

Ref: Prof Bernard Blanc & Dr Hans Hertel

WHAT HAPPENS TO EM WAVES ENTERING OUR BODIES?

We are 85% water so we act like aerials to EM waves.

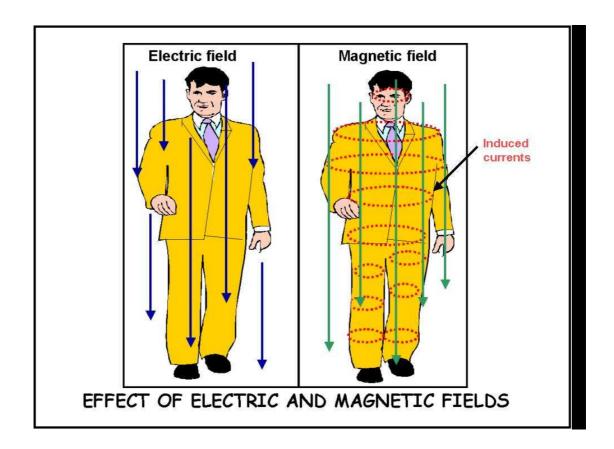
As the waves enter our bodies, an electric current is generated inside our bodies. This is how an aerial works. Waves picked up by the aerial generate electricity inside it.

Like all electric currents, the electricity generated in our bodies flows to ground - i.e., it takes the path of least resistance. But ... the path of least resistance through our bodies carries 90% of our traffic: neurotransmitters, antibodies, hormones, etc.

This traffic in our bodies knows where it's going because it also carries an electric charge. It knows where to "get off" because there is a corresponding opposite charge at the site of delivery. This process is rather like the positive and negative poles on a battery.

Electric currents passing through the body change this charge - on the hormones, or neurotransmitters or even the site of delivery.

Check out the following slide, too.



As the slides show, the research found that micro-waved food suffered severe molecular damage. When eaten, it caused abnormal changes in human blood and the immune system. These changes included a decrease in all haemoglobin and cholesterol values. The white blood cells - called lymphocytes - showed a more distinct short-term decrease following the intake of microwaved food.

It was plain that this study had enough evidence to make anyone with a modicum of common sense sit up and take notice. But, as soon as the results were announced, the hammer of authority slammed down. The Swiss Association of Dealers in Electrical Apparatus for Households and Industry - known simply as the FEA - forced the President of the Court in Bern to issue a "gag order" against Hertel and Blanc.

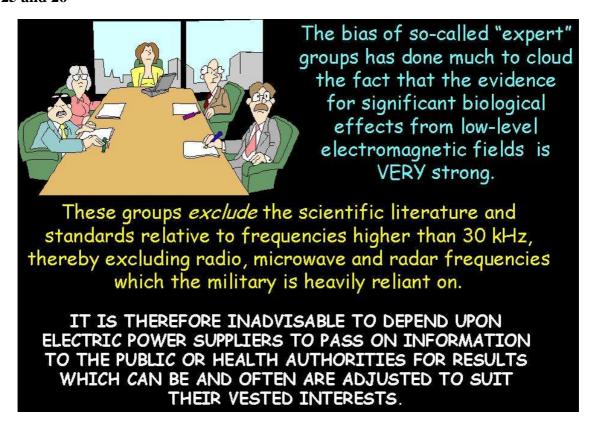
(Personally, I still cannot understand for the life of me how a gag-order can be placed on this sort of scientific information. If "they" cannot gag a scientist, "they" savagely vilify him, as was done with Dr Arpad Pusztai after his revelations over genetically engineered potatoes.)

The attack was so ferocious that Professor Blanc quickly tried to pull out, but it was too late. He had already put into writing his views on the validity of the studies.

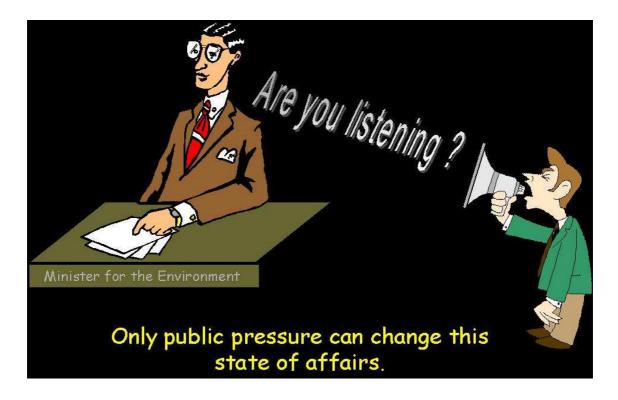
And that ladies and gentleman is the story of the microwave oven. It was not until 1998 that the Court of Human Rights removed the gag-order and paid 40 000 Francs in compensation.

What can we can we conclude from all this?

We live in an increasingly "electrified" world. We cannot really get rid of all our communications and power schemes to solve these problems. However, considering the studies and weight of the evidence, it is simply *not* acceptable for government agencies to continue to base recommendations on outdated information.



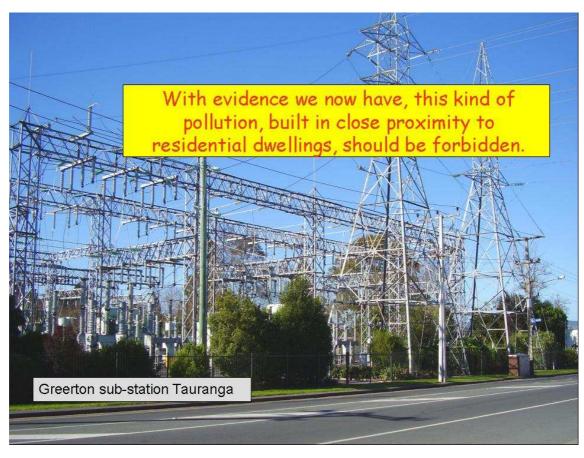
It is interesting that the European Parliament has taken a strong progressive stand on limiting EMR exposure. They have a resolution entitled, 'Combating Harmful Effects of Non-Ionising Radiation.' Obviously, the European Parliament takes very seriously the health hazards of EMR. I really think its high time all governments did the same!

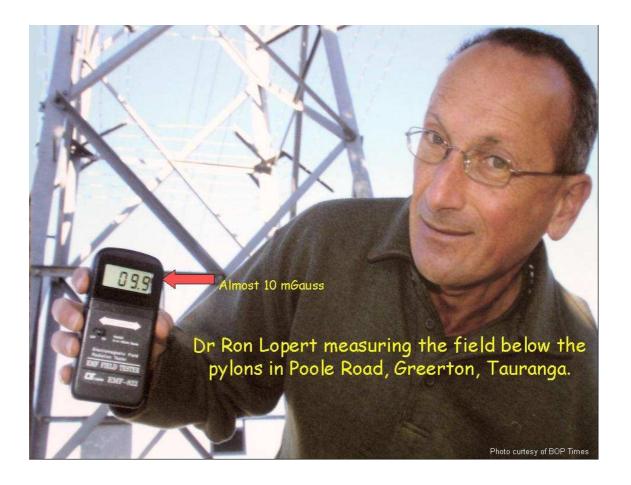


Let me give you an example of the lack of foresight and lack of acceptance of danger from my own city. The substation on the following three slides is next to a shopping centre and close to residential housing.

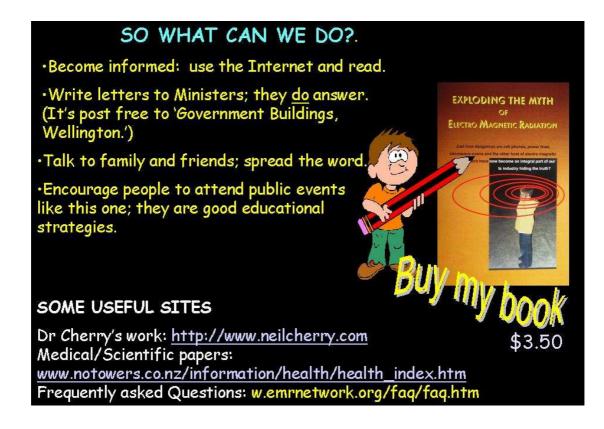
Slides 27, 28 and 29







Slide 30



Please direct enquiries for updated details on *Exploding the Myth of Electro Magnetic Radiation* and other books by Robert Anderson to <u>connectedbooks@clear.net.nz</u>

Thank you for listening.

Footnotes:

- 1. It is disturbing to see that some of the studies that found adverse reactions to EMR were undertaken as long ago as the 1980s.
- 2. As far back as November 1993, the US Environmental Protection Agency (EPA) came out strongly against the US Federal Communications Commission's proposal to adopt new standards (IEEE C9S.1) on RF/MW exposure, contending that the standards had "serious flaws." The EPA questioned whether it was "sufficiently protective of public health and safety." The EPA criticised in particular the standard's different limits for controlled and uncontrolled environments and the failure to consider non-thermal effects.
- 3. And remember what the FDA advised that cell phones only be used when necessary and then only briefly.
- 4. Physician, Dr Dean Rittmann, died of a brain tumour aged 41 in October 1994 following extensive cell phone use. His estate sued Motorola. Check this out on the web.
- 5. Check out *The Lancet*, 25 November 2000; 356: 1833-36, 1837-40 and *The Lancet*, 20 June 1998; 351: 1857-1858.
- 6. Two Russian journalists, Vladimir Lagovski and Andrei Moiseynko from Komsomolskaya Pravda Newspaper in Moscow, claim they cooked an egg using the radio waves generated by their mobile phones. True or false? Check it out on the Internet.
- 7. See www.nypost.com/news/regionalnews/26464.htm where it suggests men who regularly carry a cell phone in a pocket near their testicles may have their sperm count reduced as much as 30 percent. The *New York Post* reports that a team from the University of Szeged in Hungary studied 221 men for 13 months and compared the sperm of those who used their cell phones heavily with those who did not. Those who did, and had them on stand-by all day, had a significantly lower sperm concentration: 59.11 million sperm per millilitre of seminal fluid, compared with 82.97 million for men not continually exposed to cell phone radiation. In addition, those who made lengthy calls had slower-moving sperm.
- 8. Scientists are brandishing a new term electro-sensitivity a heightened reaction to electrical energy that includes mobile phones, electricity pylons and, yes, computer screens. See www.mybiopro.com/NZ/Press.
- 9. See Ten reasons to throw out your microwave oven on http://www.relfe.com/microwave.html and http://www.geocities.com/food-supply-report.html. See also http://www.geocities.com/CapitolHill/Lobby/8979/page26.html.