

Climate seminar: 7.30-9.00pm on Wed 10 May at St Luke's

Presentation by Dr George Preddey

Last year, Jim Flynn, Emeritus Professor of Politics at the University of Otago published {1} "***No place to hide: climate change: a short introduction for New Zealanders***". Professor Flynn is better known internationally for his discovery of historical global gains in IQ – the so-called Flynn effect. "*No place to hide*" is available from Whitcoulls for \$29.99.

To save you time and \$29.99, I've prepared {2} **a 6 page summary of Flynn's 106 page book, available at this seminar or through the St Luke's website.**

I prefer the term "climate disruption" to "climate change" because, as sceptics frequently point out, the Earth's climate changes over time. Climate change is an effective euphemism for climate disruption promoted by big energy that is following the same tactics used by big tobacco to cast doubt for decades on an established scientific link between lung cancer and smoking.

In previous employment as a physicist, futurist, and disaster manager, I've worked for Victoria University as a lecturer graduating PhD in 1968, for the DSIR Physics and Engineering Laboratory as a physicist, for the Commission for the Future as its Science and Technology Investigating Officer, and for the Ministry of Civil Defence as its Assistant Director of Research and Planning.

My 55-year scientific career has included publications on three perceived threats to future human civilisation: ozone depletion, nuclear war, and climate disruption linked causally to the first two.

In 1974 I happened across a paper by Rowland and Molina in the journal *Nature* warning that freon propellants used in aerosol spray cans were depleting the Earth's ozone layer that protects surface life from lethal levels of solar ultraviolet radiation.

My initial response was a letter to the editor of the precursor of today's *Dominion Post*. A strong public response to my letter resulted in me being interviewed on New Zealand's then single TV channel by the charming Sharon Crosbie.

Several days later a lawyer acting on behalf of a major multinational corporation threatened that if I didn't publicly retract what I'd said during my TV interview, the corporation would sue me for three million US dollars – about 50 million US in today's dollars

Since I was citing peer reviewed science, I chose not to retract. By agreement with Television New Zealand as second defendant, the charming Sharon Crosbie explained on a subsequent broadcast that freon, a generic term for hydrofluorocarbons, is listed in Webster's American Dictionary under a lower case f, not a capitalised brand name. To my relief, the legal threat lapsed.

The 1987 Montreal Protocol restricting freon releases into the atmosphere and Rowland and Molina's subsequent Nobel Prize for chemistry in 1995 shows that their 1974 paper was scientific fact. What I learnt from my own experience is that major multinational corporations and peer-reviewed science can prove a toxic mix, and also the importance of correct punctuation.

My 1980 job description with the Commission for the Future required me to identify future contingencies that New Zealand might face in subsequent decades. To achieve this, I established four ad hoc study groups of experts to investigate natural, societal, global financial, and global nuclear disasters.

{3} "***Future Contingences 1: Natural Disaster***" published in September 1981 was New Zealand's first official government publication on climate disruption. On balance it found in favour of increasing global temperatures driven by increasing human-induced carbon emissions.

{4} "***Future Contingencies 4: Nuclear Disaster***" published posthumously in March 1982 proved a disaster for the Commission itself. This peer-reviewed report by five contributing authors analysed the consequences of a global nuclear war for New Zealand. Prime Minister Robert Muldoon interpreted the report as questioning the wisdom of New Zealand's participation in the then ANZUS nuclear alliance. His immediate response was to disestablish the Commission.

The immediate consequence for me was unemployment. What I learnt from my own experience was that politics and peer reviewed science can prove a toxic mix. New Zealand's subsequent nuclear-free policy shows that Muldoon's interpretation was not unreasonable. However it was neither a consideration nor a recommendation of the study group.

In 1985 I updated the Commission's 1982 nuclear war report through my own private publication {5} "***Nuclear Disaster: a new way of thinking down under***". In my update, I drew on subsequent research on climate disruption by a global nuclear war that include sub-zero temperatures and darkness at noon, aptly termed a "nuclear winter".

I will now summarise Jim Flynn's conclusions drawing on my own experiences as a physicist, futurist, and disaster manager.

Firstly and most importantly, climate disruption is a threat to the continuation of human civilisation, whether caused by increasing human-induced carbon emissions or by a global nuclear war.

Secondly, climate disruption is scientific fact. In a post-Trumpian world of alternative facts, scientific fact may require explanation. A scientific fact is identified by the application of the so-called scientific method developed by scientists during the 17th and 18th century enlightenment period. The process is initiated by a scientist proposing a disprovable scientific conjecture. If that conjecture is supported by observations, leads to theories that explain it and to successful predictions supported by further observations, it can then be considered a scientific fact.

The conjecture that increasing human-induced carbon emissions from the burning of fossil fuels would cause climate disruption was first proposed by the Swedish chemist Arrhenius in 1896. Unequivocal proof of Arrhenius' conjecture has been provided by decades of peer-reviewed science consolidated in the fifth Assessment Report of the Intergovernmental Panel on Climate Change published in 2013. This report establishes climate disruption by humans as scientific fact. Concern about climate disruption is not - as some would want us to believe - tilting at windmills.

The Earth's current distribution of tectonic plates allows polar ice caps to form. Polar ice caps presently cover the land masses of Greenland and Antarctica. Whether they persist or not will largely determine the Earth's future climate and the fate of future human civilisation.

{6} **New Scientist for 22 April 2017** reported that, during the past 2.5 million years, the Earth flipped between ice ages and warmer eras. Over most of the past 7,000 years, global temperatures have decreased at a rate of one-hundredth of a degree per century. Over the past 45 years, they have increased at a rate equivalent to 1.7 degrees per century entirely driven by human activities.

Scientists are now recognising three phases of evolution of the Earth's biosphere: a microbial era of single cell life that began 3.5 billion years ago, a Cambrian explosion of complex multicellular life that began 650 million years ago, and an Anthropocene era beginning about 50 years ago when humans began to wreak

havoc in the biosphere through climate disruption, mega-extinctions, deforestation, and other calamities.

Human-induced carbon emissions are now predicted to increase atmospheric carbon levels by 2050 to their highest level in 50 million years. IPCC's 2013 estimate for a sea level rise of 1m by 2100 has recently been increased to 3m driven by rapid loss of polar ice.

Scientists warn of a "tipping point" around 2050 beyond which global warming will cause irreversible melting of glaciers and runaway global warming despite all human efforts to reduce carbon emissions. Flynn argues it is sheer fantasy to imagine that all nations will cut their carbon emissions in time to avoid the "tipping point".

Flynn concludes that even the most optimistic carbon emissions cuts cannot save humanity from the "tipping point" unless also supported by climate engineering that stabilises global temperature during the slow but necessary transition to zero carbon energy generation.

I'll conclude by outlining for your consideration some possible responses to the threat of human-induced climate disruption.

Firstly, read {1} **Jim Flynn's short introduction to climate disruption** or my {2} **six page summary of it** and become better informed about the threat.

Secondly, make submissions to politicians prior to the September election that hold them accountable for their completely inadequate responses to date. Over the past decade, I've made {7} **21 evidence-based hard copy submissions on climate disruption** to all MPs and to leaders of local government. Despite my efforts, these 21 submissions amounting to 84,026 words have been largely ignored.

Thirdly, support organisations taking direct action against those responsible for climate disruption. I'm proud to be a one percent shareholder in Greenpeace's new vessel currently protesting against prospecting in New Zealand territorial waters for new oil that can never be safely burnt. I have a "No New Oil" sticker on my letterbox.

Fourthly, think of your grandchildren by supporting {8} **Generation Zero's promotion of a Zero Carbon Act NZ** through the New Zealand Parliament. This organisation represents the generation with the most to lose from a completely inadequate response to climate disruption by most New Zealand politicians to date.