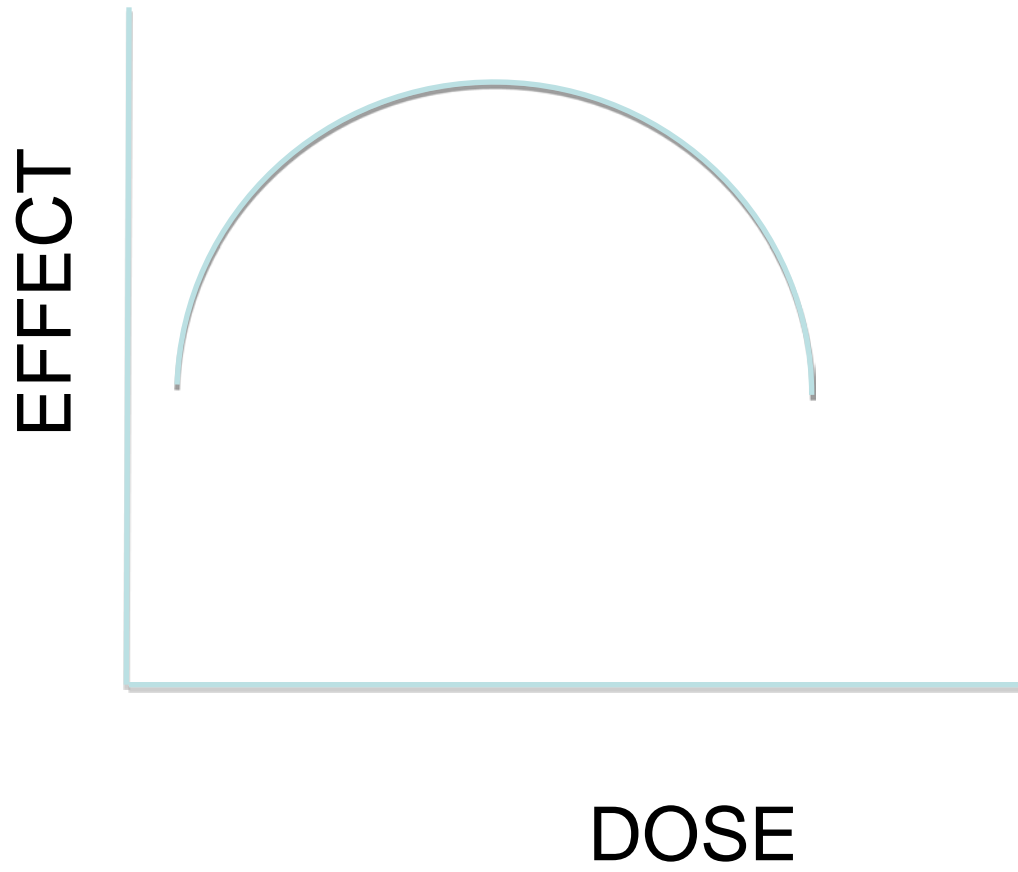


# Hormesis, Guilt and Market Science

Colin Seymour  
McMaster University

# St. George's Day





Where am I on the curve?

**HORMESIS IS AN UNCERTAIN,  
UNPREDICTABLE RESPONSE**

# Guilt

An emotion occurring when a person believes that they have violated a moral standard

Guilt is a way of controlling behaviour

# Guilt

Is there an inherent desire for absolute values ?

The dualism of  
black/white  
good/bad

# Guilt

The media's the most powerful entity on earth. They have the power to make the innocent guilty and to make the guilty innocent, and that's power. Because they control the minds of the masses.

Malcolm X

# guilt

A fact is a simple statement that everyone believes. It is innocent, unless found guilty. A hypothesis is a novel suggestion that no one wants to believe. It is guilty until found effective.

Edward Teller



# guilt

The conscience of the world is so guilty that it always assumes that people who investigate heresies must be heretics ; just as a doctor who studies leprosy must be a leper. Indeed, it is only recently that science has been allowed to study anything without reproach.

Aleister Crowley

# Margaret Thatcher



## Influence

- Established a robust foundation for British foreign policy
  - Initiated by the assembly of a British Military Task Force assigned to take back the Falklands islands
- Irrevocably intolerant to terrorism
- Introduced reform of education system and health service
  - The first national education curriculum thrived
  - Health reforms proved effective
- **Thatcherism**
  - Economic liberalism
  - Promotes privatization
    - Sale of state assets
  - Goal to minimize inflation
  - Government feels no obligation to be a universal provider, rather transferred the onus to the market; employers and employees
  - Welfare benefits subject to careful assessment and proof of limited means testing
- Thatcher's implementation of economic liberalization resulted in the improvement of the British economy in the 1980s

## Baroness Margaret Thatcher<sup>[2]</sup>

- 13 October 1925 – 8 April 2013
- Britain's first female prime minister
  - Elected for 3 successive terms from 1979 to 1990
- Nickname: The 'Iron Lady'
  - Coined by the Soviets

*"Her legacy is public division, private selfishness and a cult of greed that together shackle the human spirit"*

Guardian Editorial 8th April 2013

# The Market Economy

- An economic system in which economic decisions are guided solely by the aggregate interactions of a country's citizens and businesses and there is little govt. intervention or central planning.
- This is the opposite of a centrally planned economy, in which govt. decisions drive most aspects of a country's economic activity.

# The Market Economy (2)

- Market economics work on the assumption that market forces, such as supply and demand, are the best determinants of what is right for a nation's well being.
- These economies rarely engage in govt. interventions, such as price fixing, license quotas and industry subsidisations.

Investopedia online dictionary

# Market Economics

- Is incompatible with environmentalism or basic research
- Where's the market in nuclear power ?
  - construction
  - supply
  - waste

# Richard Dawkins



[3]

## Journal Publications

- Dawkins, R., & Krebs, J. R. (1978). Animal signals: information or manipulation. *Behavioural ecology: An evolutionary approach*, 2, 282-309.
- Dawkins, R., & Krebs, J. R. (1979). Arms races between and within species. *Proceedings of the Royal Society of London. Series B. Biological Sciences*, 205(1161), 489-511.

## Richard Dawkins

- Evolutionary biologist
- PhD DSc Oxford, FRS FRSL
- Coined the term *meme*
  - Term used to describe propagation of cultural phenomena, ideas
- Interests:
  - Gene-centered view of evolution
  - Atheism (promoting scientific information over creationism)
- Twitter Account:  
<https://twitter.com/RichardDawkins>

## Notable Books

- *The Selfish Gene* (1976)
- *The Extended Phenotype* (1982)
- *The Blind Watchmaker* (1986)
- *The God Delusion* (2006)

# Science and History

Human beings must have an epic, a sublime account of how the world was created and how humanity became part of it... Religious epics satisfy another primal need. They confirm we are part of something greater than ourselves.....  
The way to achieve our epic that unites human spirituality, instead of cleave it, is to compare it from the best empirical knowledge that science and history can provide.

E O Wilson Wising up to the Epic of Evolution 1999

# Sociobiology

Now when you cut a forest, an ancient forest in particular, you are not just removing a lot of big trees and a few birds fluttering round in the canopy. You are drastically imperilling a vast array of species within a few square miles of you. The number of these species may go to tens of thousands.....Many of them are still unknown to science, and science has not yet discovered the key role undoubtedly played in the maintenance of that ecosystem, as in the case of fungi, micro organisms and many of the insects.

E O Wilson, Washington, 1998



# Sociobiology

Wilson used sociobiology and evolutionary principles to explain the behaviour of the social insects and then to understand the behaviour of other animals including humans. All behaviour is the product of heredity, environmental stimuli and past experiences, and free will is an illusion.

“Science and religion are two of the most potent forces on Earth and they should come together to save the creation “

# E.O. Wilson



[1]

## Journal Publications

- Over 433 articles published (ref)
- **Most cited:**
  - Brown, W.L. and Wilson, E.O. 1956. Character displacement. *Systematic Zoology*, 5: 49-64.
  - Simberloff, D.S. and Wilson, E.O. 1969. Experimental zoogeography of islands: the colonization of empty islands. *Ecology*, 50(2): 278-296.

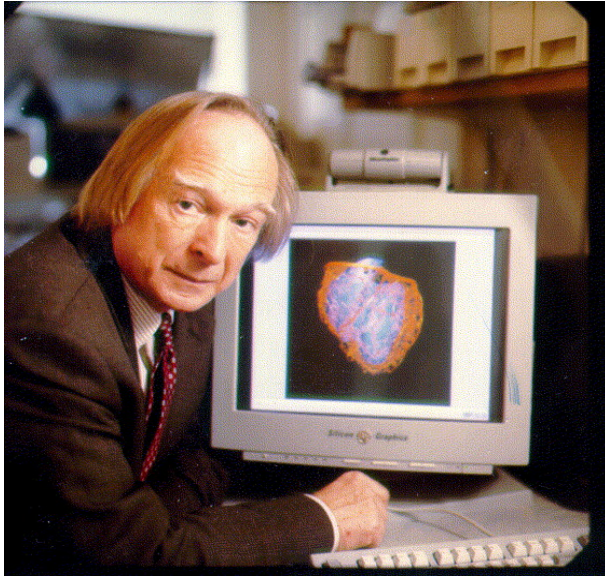
## Notable Books

- *The Theory of Island Biogeography* with RH MacArthur (1967)
- *The Insect Societies* (1971)
- *Sociobiology: The New Synthesis* (1975)
- *On Human Nature* (1978)
  - Pulitzer Prize for general non-fiction (1979)
- *The Ants* with Bert Holldobler (1990)
  - Pulitzer Prize for general non-fiction (1991)
- *The Diversity of Life* (1992)
- *Naturalist* (1994)
- *The Creation* (2006)

## Edward Osborne Wilson

- Biologist
- PhD (biology) Harvard University (1955)
- Entomology professor at Harvard University
- Research Interests: Classification of ants; biology of social insects, evolutionary biology, sociobiology, biogeography
  - Particularly advocated for the interdependence of all organisms

# Denis Noble



[2]

## Denis Noble

- PhD, University College London (1961)
  - Developed the first computer modelling of the heart (cardiac electrophysiology)
- Cardiovascular Physiology professor at Oxford University (1984-2004)
- Currently the co-Director of Computational Physiology
- Research Interests: utilizing computer models of various body organs to assess anatomy and physiology (function)

## • Journal Publications

- Over 350 research papers published (ref)

## • Most Cited:

- Noble D. A modification of the Hodgkin-Huxley equations applicable to Purkinje fibre action and pacemaker potentials. *Journal of Physiology* 1962; 160: 317-352.
- Noble D & Tsien RW. Outward membrane currents activated in the plateau range of potentials in cardiac Purkinje fibres. *Journal of Physiology* 1969; 200: 205-231.
- McAllister RE, Noble D & Tsien RW. Reconstruction of the electrical activity of cardiac Purkinje fibres. *Journal of Physiology* 1975; 251: 1-59.
- DiFrancesco D & Noble D. A model of cardiac electrical activity incorporating ionic pumps and concentration changes. *Philosophical Transactions of the Royal Society B* 1985; 307: 353-398.
- Noble D. Modelling the heart: insights, failures and progress. *BioEssays* 2002; 24: 1155-1163.

## • Notable Books


- *The Music of Life* (2006)
- *Electric Current Flow in Excitable Cells* with JJB Jack & RW Tsien (1975)
- *The Initiation of the Heartbeat* (1975)

**GAGGING**

# BBC News

- More opinion than news
- Selective reporting
- Twitter (can you encapsulate wisdom in 150 characters ? )
- **LACKS ANALYSIS**

THE WORLD  
IS ASKING...



WHY IS CANADA  
*muzzling*  
ITS SCIENTISTS?

**PINKWASHING**

Japan may be facing cancer time bomb two years after Fukushima  
Posted on March 27, 2013 by Ida Torres in Features, National  
with 2 Comments

Japan may be facing cancer time bomb two years after Fukushima

It has been two years since the Great East Japan Earthquake and tsunami hit northeastern Japan and caused the meltdown of the Fukushima nuclear power plant – the world’s worst nuclear disaster since Chernobyl. As the people begin to rebuild, signs of a cancer outbreak from the radiation of the troubled nuclear power station are beginning to show.





Two years after the meltdown in the reactors at Fukushima, the world has seemingly moved on. Officially, the mass evacuation of the areas around Fukushima was a success and the action of the workers at the plant may have averted a nuclear catastrophe. Authorities have insisted that no one has died as a result of radiation from Fukushima. There are, however, concerns that the full-scale of the disaster has yet to be seen. The most obvious – and immediately worrying – are results of tests carried out on more than 130,000 children who lived around Fukushima. Over 40 per cent of the children are showing early signs of thyroid cancer. Experts say that the other signs of the disease will not become apparent until 10 years after.

Questions are being asked as to how this happened. There are claims of complacency and a cover-up. While it is admirable and efficient that the people living very close to the nuclear plant were evacuated within the first few days, only time can tell if any damage may already have been done to their health. A bigger part of the population, some living up to 25 miles away, were not evacuated until six weeks after the radiation escaped. Also, it is quite possible that the food chain around the area has been contaminated. Radioactive material has been detected in all sorts of farm produce, including spinach, tea leaves, milk and beef, even as far as 200 miles away. According to Japan's NHK, fish caught near the plant this month were over the radiation limits more than 5,000 times.

Currently, there is still a real daily risk of radiation escaping from the plant. The reactor is being cooled with huge amounts of water, but workers are running out of storage for the contaminated liquid once it has done its job. Even today, there is now pressure on the thousands of people who fled Fukushima to return to the area starting next month. These people who lived in outer areas have been told it's safe to go home. Some of these people claim that authorities say they will not be eligible for any compensation if they stay away.

Experts are not able to agree on how serious the risks are, which adds to the confusion. One scientist says the radiation released was about 10 percent of the Chernobyl disaster, and another expert claims the true figure is closer to 40 percent. The government's official position on radiation risks is based on the fact that very few Fukushima residents received doses over 100 millisieverts per year – which some studies show is the threshold for increased cancer risk. But other studies have shown that cancer can occur in much lower doses. “The potential effects of radiation from Fukushima have been shamelessly downplayed,” said Dr Rianne Teule, a radiation expert with Greenpeace. “It could be many years before we discover the real impact and some of the risks are being ignored.”

# Confucius



[1]

## Confucius

- Chinese sage, educator, philosopher
- 551-479 BC (estimated)
- Knowledge on Confucius is largely based on speculation and the word of others documented in texts
- His life was not well documented at the time of his existence
- Even so, his teachings remain to be a significant influence in Chinese, Vietnamese, Korean and Japanese society

### Influence & Ethics

- Concept of *ren* – one should possess compassion and love towards others and towards nature
- Demonstrate *ren* through the practice of the Golden Rule: “What you do not wish for yourself, do not do to others” (Lunyu, 12.2)

### Education

- Taught his disciples the moral behaviours that facilitate the cultivation and maintenance of harmonious relationships
- Promoted integrity and grace; conversely demonstrated a dislike for pretentious manner

### *Ren*'s influence upon politics

- Governance should be conducted with compassion and concern; rulers should lead by example; a leader should demonstrate self-discipline

### Literature

- *Analects* (*Lunyu* in Chinese)
  - Compiled by the disciples of Confucius
  - Represents the best understanding of Confucius available
  - Although controversial as this work was compiled long after his death by disciples and subsequent generations of disciples thereafter