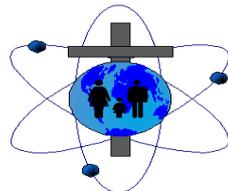


# **SRT: The Society, Religion and technology project**

**Helping the church to engage with ethical  
issues in science**

Dr Murdo Macdonald

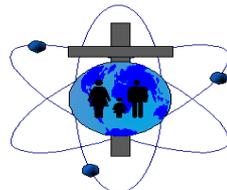
Society, Religion and Technology  
Project



Society, Religion &  
Technology Project

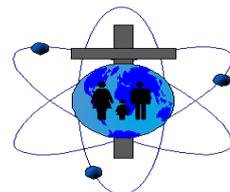
# Society, Religion and Technology Project

- Set up in 1970 by the Church of Scotland
- Exploring ethical issues in current and future technology
- Engaging with:
  - research, industry, government/ EC, regulators
- Multi-disciplinary
  - seeking balanced and informed assessment
- Christian ethical reflection applied to technology
- Addressed to policy makers and public debate



## Some Basic Ethical Issues of Technology

- Limits – lines we decide *not* to cross even though we *could*?
- Intervention / Conservation – where does the balance lie?
  - environment, waste, animal-medical, long & short term
- Innovation / Risk
  - Uncertainty and precaution – whose burden of proof is it?
- Particular issues raised by each area :
  - energy, food, medicine, IT, communications, transport, etc.
  - Nuclear power, GM food, cloning and stem cells, genetic information, animal research, mobile phone masts, food miles, climate change, personal mobility and lifestyle ....



# Some guiding principles

- **You are the salt of the earth...You are the light of the world**

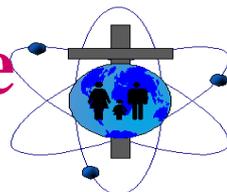
Matt. 5 v 13, 14

- **Wherever the church lacks a presence, that environment becomes impoverished of values and ethics**

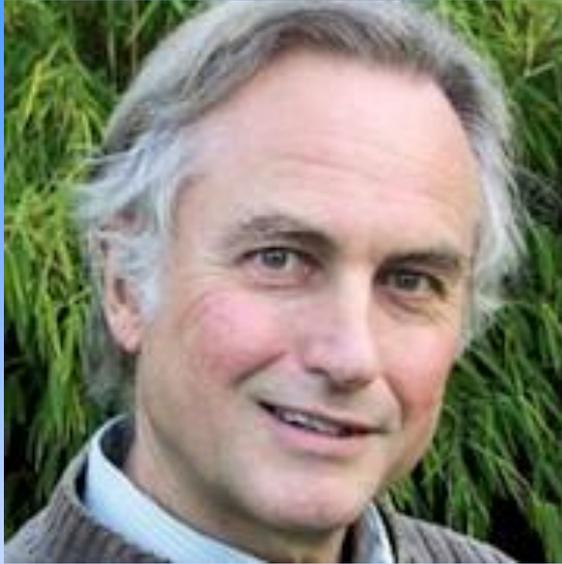
Fr. Claudio Paganini

Four- Four- Two, Sept 2007

- **People generally don't care what you believe unless they believe that you care**

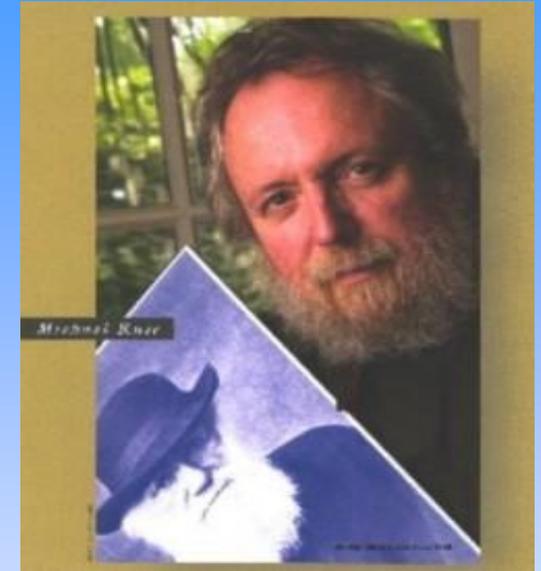


# What is the interface between science and faith?



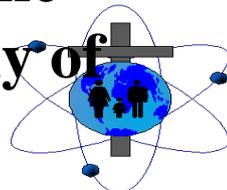
Richard Dawkins

- Faith is “a kind of mental illness”, one of the “world’s great evils, comparable to smallpox virus but harder to eradicate”.
- The Root of All Evil?



*“The God Delusion makes me embarrassed to be an atheist”*

Michael Ruse (atheist - writes extensively on the History and philosophy of Darwinian Evolution)

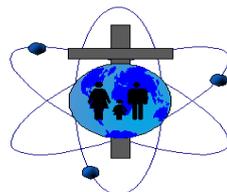


# SRT@40: Nov 20<sup>th</sup> 2010

A conference marking 40 years of the Society,  
Religion and Technology Project.

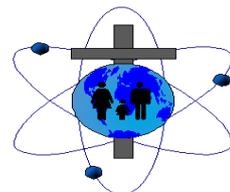
*Contributors include*

- *Prof. John Wyatt (University College, London)*
  - *Ethical Issues at the Beginning and end of Life.*
- *Dr. David Pullinger (Head, UK Government Digital Policy)*
  - *Technology, e-Government and the Citizen.*
- **Date: Saturday Nov 20<sup>th</sup> 2010**
  - Time: 10.00a.m.-4.00 p.m.
  - Registration £10 (Lunch and refreshments included)



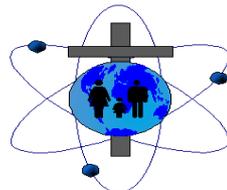
# Some current and future issues

- General Assembly 2009
  - End of Life Issues
  - Ethics of Defence
- General Assembly 2010
  - Synthetic Biology
- General Assembly 2011
  - Suicide among young men
- General Assembly 2012
  - Neuroethics
  - Sustainable Agriculture
  - Ethics and economics



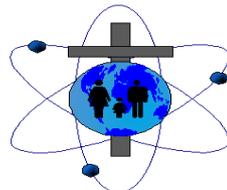
# End of Life issues

- Assisted suicide/ euthanasia much in the news
  - Daniel James- rugby player
  - Debbie Purdie- MS sufferer
  - Margo Macdonald: “End of life assistance” bill
- Paper addresses these issues, but also many wider areas
  - Palliative/ pastoral/ spiritual care
  - Care for carers



# Ethics of Defence

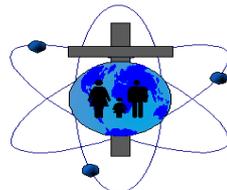
- When does weapon of defence become one of aggression?
  - Christianity and pacifism: “just war”
  - Military covenant
- Trident?
  - Who is being targeted
  - Allocation of resources
- Role of UK in the world
  - UN Security Council member
  - Original nuclear weapons state



# Ethics and economics

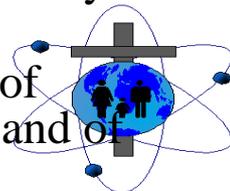
- Global financial crisis
- Affects all churches, communities and families
- Church needs to be there for those in need
- “holding out the word of life”

Phil 2: 16

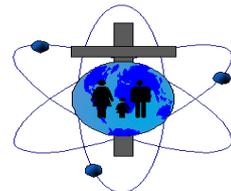


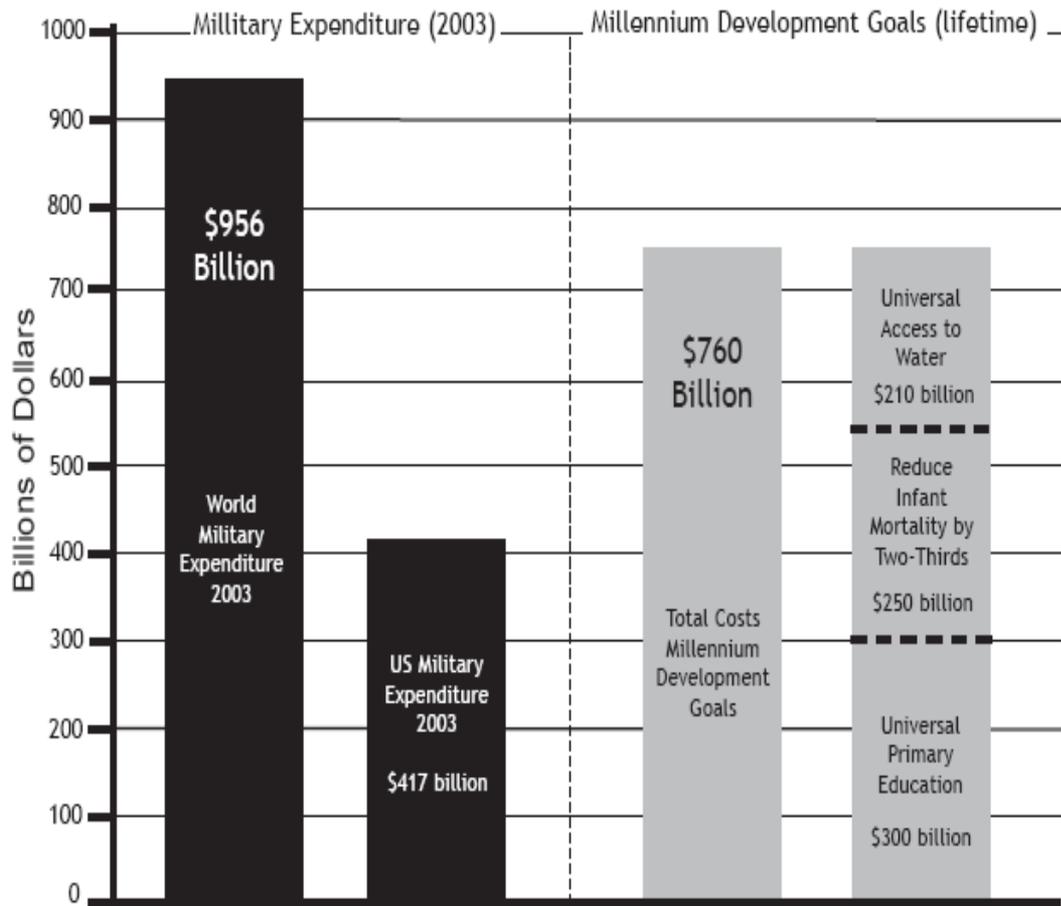
# Commission on purposes of economic activity

- **Prof Charles Munn OBE:** Formerly Chief Executive of the Chartered Institute of Bankers in Scotland
- **Linda de Caestecker:** Director of Public Health for NHS Greater Glasgow and Clyde and Glasgow City Council.
- **Paul Chapman** who was for ten years director of an organization working with unemployed men and women in the New York area,
- **Rev. Doug Gay:** Lecturer in Practical Theology at the University of Glasgow.
- **Rev. Kathy Galloway:** Head of Christian Aid in Scotland
- **Janette Harkess:** director of policy and research, Scottish Council for Development and Industry
- **Werner G. Jeanrond:** Professor of Divinity at the University of Glasgow
- **David Lonsdale:** Assistant Director of CBI Scotland
- **John McFall:** Chairman of the Treasury Select Committee from 2001 until he stepped down as an MP in the 2010 General Election.
- **Jeremy Peat:** Director of the David Hume Institute, former Senior Economic Adviser at the Scottish Office
- **Cathy McCormack:** campaigner, and co author of “The Wee Yellow Butterfly”
- **Grahame Smith:** General Secretary of the STUC,
- **Jim Spowart:** former director of Direct Line Financial Services and of Intelligent Finance (IF)



# Is economics an ethical issue?



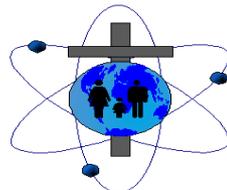


In 2003, the world spent more than \$900 billion on its militaries, with the US contributing nearly 50% of the total. World military expenditure in one year is greater than would be required to fulfill the Millennium Development Goals in 11 years. If 10% of world military expenditure, or 20% of US military expenditure, were diverted yearly, the MDG could be fully funded.<sup>1,2</sup>

 <p><b>1</b> ERADICATE EXTREME POVERTY AND HUNGER</p>	 <p><b>5</b> IMPROVE MATERNAL HEALTH</p>
 <p><b>2</b> ACHIEVE UNIVERSAL PRIMARY EDUCATION</p>	 <p><b>6</b> COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES</p>
 <p><b>3</b> PROMOTE GENDER EQUALITY AND EMPOWER WOMEN</p>	 <p><b>7</b> ENSURE ENVIRONMENTAL SUSTAINABILITY</p>
 <p><b>4</b> REDUCE CHILD MORTALITY</p>	 <p><b>8</b> GLOBAL PARTNERSHIP FOR DEVELOPMENT</p>

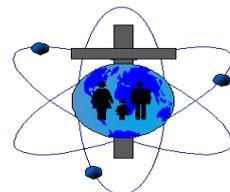
# Synthetic biology

- Defined as:
  - “the deliberate design of biological systems and living organisms using engineering principles “
  - Life 2.0
- Re- designing what we have in nature
  - First using DNA/ proteins we currently have
  - Next step to include non- natural components
  - Craig Venter's “Synthia”



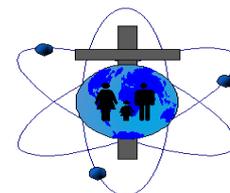
# Why SB?

- Possible commercial applications include:
  - generation of new fuels
  - Pharmaceuticals: discovery of new drugs
    - new screening and design strategies (e.g. anticancer compounds)
- Improved drug production
  - artemisinin for malaria
- Novel therapies and disease prevention
  - invasion of cancer cells by engineered bacteria, preventing infection by eliminating the pathogenic habitat
- Novel materials
  - spider silk from *Salmonella typhinurium*
- Biosensors and control systems
  - pollutant monitoring



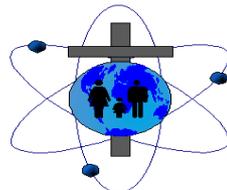
# Concerns about SB

- Unforeseen consequences of release into environment
  - Humans don't have a good record in this regard
  - e.g. rabbits/ cane toads in Australia
- Possibilities for terrorist use
  - Newly engineered Ebola virus
- International justice
- Playing God?
  - How far is too far?



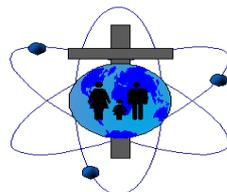
# Some ethical issues in brain imaging

- Who should be able to see what you're thinking?
- Guilty or innocent?
- Reductionism: what about love?
- Consciousness
- Cognitive enhancement



# Responsibility and the law

- Is it a legitimate defence to claim that e.g. a brain tumour ‘made you do it’?
- Do the brains of minors have the same decision-making and impulse control as adult brains – and how does that change punishment?
- How should we assess responsibility, given that many behaviors are driven by systems of the brain that we cannot control?
- What about addictions?
  - amphetamine addict Michael Hunter jailed for attacking a friend with a hammer. Judge noted that amphetamine had clearly affected Hunter’s mental health, but he highlighted the fact that he had been responsible for two unprovoked attacks using weapons.

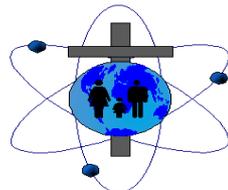


# Guilty or innocent?

- “Technology has limits of detection, but if you fall on one side of the current limit and we can detect “abnormalities”, you receive treatment. On the other side of the line, we punish you”

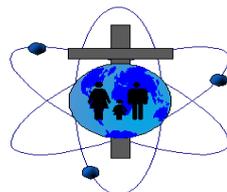
David Eagleman, Baylor College

- Purpose of sentencing policy
  - Punishment?
  - Rehabilitation?



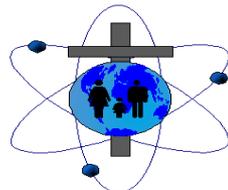
# Consciousness

- Functional neuroimaging and withdrawal of life-sustaining treatment from vegetative patients.
  - Wilkinson *et al* J Med Ethics. (2009) 35: 508-11.
- fMRI studies of patients in a vegetative state raised the possibility that such patients retain some degree of consciousness
- If there is evidence of consciousness, should treatment be withdrawn?
- Paradoxically, discovery of consciousness in very severely brain-damaged patients may provide **MORE** reason to let them die.



# Reductionism

- Are we more than just a series of chemical reactions?
- What about
  - Emotions
  - Rationalisation
  - self- consciousness
  - moral reasoning
- The God hypothesis
  - Will science eventually do away with the need for God?
  - Why suppose there's a ghost in the machine at all?
- What about free will?



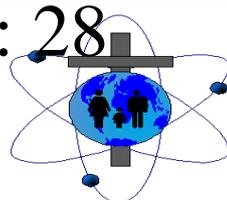
# Privacy

- Who should be able to see what you're thinking?
  - “Although privacy is a central issue in classical bioethics, protection of mental privacy- the freedom to think one’s own thoughts unobserved- adds a new dimension to the discussion”
    - Martha J Farah, Dana Foundation
- “Test me, O Lord...examine my heart and my mind”

Psalm 26: 2

- “Anyone who looks at a woman lustfully has already committed adultery with her in his heart”

Matt 5: 28

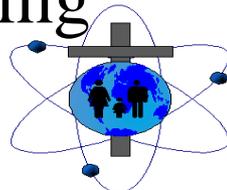


# Enhancement

- Using technology to enhance human abilities
- Most of us enhanced in some way
  - Contact lenses
  - Vaccination
  - Cochlear implants
  - Hip replacements

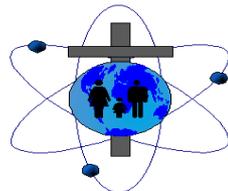
“Enhancement involves giving abilities integral to the body beyond those we would normally consider a human to possess”

Prof Kevin Warwick, Reading



# Three levels of enhancement

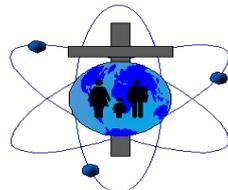
- Trivial
  - Vaccination
  - Contact lenses
- Conventional
  - Cosmetic surgery
  - Prosthetic devices
  - Drugs for cognitive enhancement
- Transhumanist
  - Aims to develop enhancements well beyond conventional- eventually leading to “posthuman”



# What is transhumanism?

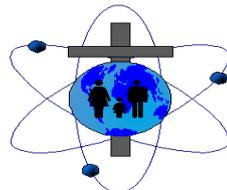
- Transhumanism views humanity as an evolving phenomenon
- The next step of evolution is in our own hands
  - “Transhumanists view human nature as a work-in-progress, a half-baked beginning that we can learn to remould in desirable ways”

Nick Bostrom, University of Oxford



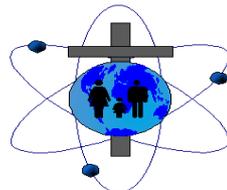
# Cognitive enhancement

- Ritalin and Adderall are prescribed mainly for attention deficit hyperactivity disorder (ADHD)
  - Widely used by students studying for exams
  - Up to 25% on some US campuses
- In US, soldiers are legally required to take medications, if ordered to, for the sake of their military performance
- Pharmaceutical erasure of unwanted memories
  - Memory Pharmaceuticals



# Cognitive enhancement

- For airline pilots or surgeons, the consequences of a lapse in concentration could be dire
  - Cognitive enhancement could help prevent such lapses
- Patients often resume taking their antidepressants after recovery, because on medication they felt “better than well”
  - Peter Kramer, *Listening to Prozac*
- Do we have a moral obligation to use technology in these situations?



# Brain imaging

- Many issues raised by many technologies
  - Where do we draw line?
- Is science the only or final arbiter?
  - Drug policy decisions
- View from the pulpit?
  - Does church have any role to play?

