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Science under Attack: Opinion v. Expertise

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Introduction:

I was delighted to accept your invitation, passed on by the much admired Soula Bennett, to deliver the Stanhope Oration for 2013.

I have been eager to find out more about Roy Stanhope who seems to have been an inspiring teacher of chemistry in New South Wales, deeply committed to raising professional standards in science teaching generally. He published a study in 1932 of chemistry teaching in his home state, taught at Sydney Teachers' College and was a founder in 1951 of ASTA. He was born, it appears, in 1902, received an AM in 1989 at a very advanced age in recognition of his work, and died in 1994.

What am I doing here?

I was Australia's longest serving Science Minister (1983-90), I think, in part, because nobody else wanted it. Before and after that period I have maintained an intense interest in science/research and its implications for public policy and politics generally. I have been generously rewarded by election as a Fellow of Australia's four learned Academies.

I have often been asked about how I came to be so heavily involved in Science policy and thinking about Australia's future, so let me begin with some personal reflections.

From childhood, I was deeply involved, obsessed even, in the history and philosophy of science and read H G Wells, J B S Haldane and Julian Huxley

avidly. Jules Verne, too. These names, so important to me then, may be unfamiliar now. I tried to apply much of what I had learned about science in my political career, such as it was.

Despite having been a Member in State and Commonwealth Parliaments for 26 years, and a Minister for seven, I left politics with a profound sense of frustration and unease.

I was seen as too individual and idiosyncratic by political colleagues, totally lacking in the killer instinct, while many in the academic community might have seen me as too political, even too populist.

My book *Sleepers, Wake!* was published by Oxford University Press in 1982, just over 30 years ago, and its success, both here and internationally, mystified and irritated many of my colleagues. It went through 26 impressions and was translated into Chinese, Japanese, Korean, Swedish and Braille.

Thirty years on, my central thesis stands up pretty well. My major fault was in being too cautious about the speed and impact of change. But in trying to predict the social, economic and personal impact of technological change, in 1982 I was Robinson Crusoe. I'll amend that in case you have not read Daniel Defoe: I'll say, 'I was on my own'.

Also, in politics, and in most other areas of life, nobody likes to be reminded: 'I told you so'.

In politics, my timing was appalling.

In October 1985 when I became the first, and, so far, only Australian Minister invited to address a G7 Conference, in Canada, the reaction of my colleagues was not celebration but irritation – 'Why him?'

I kept raising issues long before their significance was recognised. That made me, not a prophet, but an isolated nerd.

I can claim to have put six or seven issues on the national agenda, but I started talking about them 10 > 15 > 20 years before audiences, and my political colleagues, were ready to listen.

In politics, timing is (almost) everything and the best time to raise an issue is about ten minutes before its importance becomes blindingly obvious.

The issues were:

(i) Post-industrialism: the sharp decline in manufacturing as an employment sector due to the globalisation of markets and revolutionary changes in production techniques, leading to a sharp reduction in labour demand

(ii) Information Revolution – transition to digital society/ economy, with the development of low-cost personal computing, new ICT tools, and the development of the Internet, WWW and social networking.

(iii) Global Warming/ Climate Change. I gave my first major speech on this in 1984. In 1987 I spoke at a Conference in London, at the invitation of Mrs Thatcher, when Al Gore and I were the keynote speakers.

(iv) Antarctica. I argued for the need to preserve it for science, as a global climate laboratory.

(v) Biotechnology. I was fascinated by the implications of the DNA revolution and seized the opportunity to exchange ideas with some of the great figures in the genetic revolution, Crick, Watson, Perutz, Sanger.

(vi) Heritage. This involves trying to understand our history, places, environment and social context, and I worked on this area at UNESCO in Paris, on and off, between 1991 and 1996.

(vii) ‘The Third Age.’ The social, economic and political implications of the steady increase in longevity, especially since the 1950s, in which there has been a two and a half year increase in life expectancy for each decade of elapsed time. I was privileged to have been made a Visiting Fellow Commoner at Trinity College, Cambridge and commuted there in 2000 and 2001 to work on ‘the Third Age.’ Trinity’s proud history in Science includes Isaac Newton and the College claims to have produced more Nobel Prize winners in Physics, Chemistry and Medicine than France.

I was also heavily involved in securing the abolition of capital punishment in Australia, reviving the Australian film industry and attempting to promote creativity in education.

The role of Science in policy development is a sensitive issue, because I have spent years, decades really, bashing my head against a brick wall trying to persuade colleagues to recognise the importance, even centrality, of Science policy.

It has been very difficult to get politicians interested in, let alone excited by, science and research.

Science and research was a black spot with Gough Whitlam, endlessly curious about so many other subjects. I tried to induce him to read *Sleepers, Wake!* and failed. ‘Far too erudite for me, Comrade!’, he said. In his later years as Prime Minister, Bob Hawke took up an intense interest in Antarctica, Paul Keating began reading about the German contribution to chemistry in the 19th Century, and Kevin Rudd became absorbed in the history of the Royal Society.

One of my successors as Minister for Science persuaded me to observe a demonstration of a perpetual motion machine in his home state, an invention which would radically reduce the cost of living and manufacturing. I saw the demonstration but was not persuaded. My Parliamentary colleague was deeply disappointed by my scepticism. He asked me why. I said, ‘Well, it can’t possibly have any validity because it is in breach of the Second Law of Thermodynamics’. My colleague responded, ‘We should repeal it.’

The present Commonwealth Minister for Science, Senator Kim Carr, is currently enjoying a second coming in the role, with the title of Minister for Innovation, Industry, Science and Research and Minister for Higher Education. He is passionately interested in science.

I am disturbed that the splendour, wonder, intellectual power and beauty of science and mathematics fail to engage many Australians, including young people who are the most technologically dependent on the artefacts of science, and the falling numbers of students undertaking science and mathematics – compared to our neighbours – should be cause for concern.

Science and the common-sense view of the world.

There is a major problem about explaining some of the major issues in science, and has been ever since science began.

Some fundamental scientific discoveries seem to be counterintuitive, challenging direct observation or our common-sense view of the world.

Common sense, and direct observation, tells us that the Earth is flat, that the Sun (like the Moon) rotates around the earth and that forces don’t operate at a distance.

Then along came the Greek scientists and later Copernicus and Galileo who said, ‘Your common sense observation is wrong. Earth is a spheroid. The orbits of Sun and Moon are completely different, although they appear to be identical. Our use of the terms “sunrise” and “sunset” preserves this misunderstanding.’

Later still, electronics enabled us to do thousands of things remotely, using forces at a distance, setting alarms and opening garage doors, or receiving signals (radio, telephony, television,).

The most obvious disjunction between science and common sense is the question: ‘, Right now, are we at rest or in motion?’

Common sense and direct observation suggests that we are at rest.

But science says, ‘Wrong again. We are moving very rapidly. The earth is spinning on its axis at a rate of 1669 kph at the equator, and in Melbourne (38°S) about 1317 kph. We are also orbiting round the Sun even faster, at nearly 30 kps, or 107, 200 kph. There is a third motion, harder to measure, as the galaxy expands – and it’s speeding up, as our Nobel Physics Laureate, Brian Schmidt, postulates.

But, sitting here in Bundoora, it is hard to grasp that we are in motion, kept in place by gravity.

Psychology resists it –and essentially we have to accept the repudiation of common sense on trust.

I would challenge anyone to reconcile common sense and quantum theory or to satisfactorily explain the Higgs boson or –hardest of all – to define gravity.

Scientific/ Analytical Method

Scientific method, rational analysis and evaluation of evidence has been a central factor in defining Western society and culture since the 18th Century, and these skills can be/ should be applied to a variety of disciplines – politics, law, economics, social sciences, health. Scientists have come under unprecedented and damaging attack arising from the climate change controversy. It is essential to distinguish between scientific scepticism (a central element in testing evidence, for example Karl Popper’s falsifiability test) and cynicism (dismissing evidence, however compelling, to promote confusion, inaction or vested interest.) Scientific vocations are falling in Australia, and this has important implications for our future economic and scientific capacity. Governments have an obligation to take up and understand the challenges raised by science, reach a national consensus in promoting the importance of science in our national life, encourage investment in science-based processes and products for which there is international demand.

Climate change: easier to sell the message during a period of prolonged drought. The breaking of the drought in 2008 proved to be a political disaster for Kevin Rudd in his first incarnation as Prime Minister.

Political process works on an assumption of common, or shared, knowledge – which may be more fragile than we are prepared to recognise.

Robyn Williams of ABC Radio National's Science Show tells the horror story of addressing an audience of teachers – I stress, not *science* teachers – some years ago when he asked, 'How many of you have never eaten food with DNA in it?' and more than half the audience put up its hands.

There are three areas of attack against expertise and taking a long term, analytical view of the world – from the Right, the Left and the anxious Centre.

The debate on climate change, especially anthropogenic global warming (AGW), has been a particularly disturbing illustration of how ill-equipped we seem to be in conducting serious debate and employing experimental method.

Right: attack by the minerals industry generally, especially coal and much (not all) of the oil industry, electricity generators. Highly personal, often abusive, sometimes threatening.

The anxious centre includes people working in a particular industries and particular regions (La Trobe Valley, Hunter Valley, Tasmanian forests), understandably fearful of potential job losses, without much prospect of job creation. The trade union movement is deeply divided on this – as is the business community.

But from the Left, or some segments of the intellectual left, a deconstructionist mind-set has partly undermined an evidence-based approach to policy making or problem solving.

The pluralist or deconstructionist or post modern theory of knowledge is contemptuous of expertise, rejects the idea of hierarchies of knowledge and asserts the democratic mantra that – as with votes in elections – every opinion is of equal value, so that if you insist that the earth is flat, reject vaccination for children or deny that HIV-AIDS is transmitted by virus, your view should be treated with respect. Similarly, there has been a rejection of expertise and or taste – rejecting the idea of people like Harold Bloom, or me, that there is a 'Western canon' which sets benchmarks. No, say the deconstructionists, the paintings of Banksy, the mysterious British graffiti artist, are just as good as Raphael, that hip-hop performances are just as valid as Beethoven's Opus 131.

Evidence v. Opinion

A central dilemma in democracy is that just as everyone's vote is of equal value, does it follow that every opinion is of equal weight, and that hard knowledge and experience confers no particular authority?

The Welsh geneticist Steve Jones asks an important question: If there is a division of scientific opinion, with 999 on one side, and one on the other, how should the debate be handled? Should the one dissenter be given 500 opportunities to speak?

There is a disturbing conflict between evidence v. opinion ('You have evidence, but I have strong opinions.') and political processes tend to be driven by opinion rather than evidence in a short political cycle.

Evidence-based policies and actions must be a central principle in the working of our system and reliance on populism and sloganeering must be rejected.

The current passionate and often irrational argument about climate change and the carbon tax illustrates the problem of balancing evidence and opinion. So do debates about vaccination, fluoridation, links between smoking and lung cancer, Holocaust denial, even the survival of Elvis, and, in Queensland, debate about the status of creationism and intelligent design.

This has been a major transformation of how society works, from 'government' to 'governance'. Managerialism has largely pushed the politics (i.e. ideological commitment and dialectic) out of politics. Generic managers promoted the use of 'management-speak', a coded alternative to natural language, only understood by insiders, exactly as George Orwell had predicted. The managerial revolution involves a covert attack on democratic processes because many important decisions are made without public debate, community knowledge or parliamentary scrutiny.

Managerialism asserted that relying on specialist knowledge and experience might create serious distortions in policy-making, and that generic managers, usually accountants or economists, would provide a more detached view: accordingly expertise was fragmented with vital decisions being determined by a managerial mindset and experience. Expertise has been 'hollowed out' in many government departments and advice is often sought externally, from management consultants or expert panels. This leads to major weaknesses on policy formulation, compounded by extreme partisanship in political life and media reporting. Universities are no longer just communities of scholars but

also trading corporations. Vested interest is almost always more powerful than community interest.

Advocacy and analysis has largely dropped out of politics and been replaced by marketing and sloganeering. Politicians share the blame as well, as consenting adults.

The politics (that is, serious debate on ideological issues) has virtually dropped out of politics and has been replaced by a managerial approach. The use of focus groups and obsessive reliance on polling and the very short news cycle means that the idea of sustained, serious, courageous analysis on a complex issue – the treatment of asylum seekers, for example – has become almost inconceivable.

For decades, politics has been reported as a subset of the entertainment industry, in which it is assumed that audiences look for instant responses and suffer from short-term memory loss. Politics is treated as a sporting contest, with its violence, personality clashes, tribalism and quick outcomes. An alternative model is politics as theatre or drama. The besetting fault of much media reporting is trivialisation, exaggerated stereotyping, playing off personalities, and a general ‘dumbing down’. This encourages the view that there is no point in raising serious issues months or years before an election. This has the effect of reinforcing the *status quo*, irrespective of which party is in power and at whatever level, State or Federal.

Despite the exponential increases in public education and accessibility to information through the revolution in Information Technology, the quality of intellectual engagement in the community generally appears to have become increasingly unsophisticated, appealing to the lowest common denominator of understanding.

Tackling complex problems will demand complex solutions (e.g. refugees, climate change) which cannot be reduced to parroting a few simple slogans (‘turn back the boats’, ‘stop this toxic tax’.) ‘Retail politics’, sometimes called ‘transactional politics’, where policies are adopted not because they are right but because they can be sold, is a dangerous development and should be rejected. We must maintain confidence that major problems can be addressed – and act accordingly. Revive the process of dialogue: explain, explain, explain, rejecting mere sloganeering and populism. We need evidence-based policies but often evidence lacks the psychological carrying power generated by appeals to prejudice or fear of disadvantage (‘They are robbing you...’) A voracious media looks for diversity and emotional engagement, weakening capacity for reflection and serious analysis, compounded by the rise of social media where users, typically, seek reinforcement of their views rather than being challenged

by diversity. Social media, with its emphasis on immediacy of response (especially Twitter) may emphasise shallow and non-reflective communication without examination or analysis of data. However, it should be recognised that social media played a significant role in getting out the vote in the 2012 Presidential election and created international interest in, and approval, for Julia Gillard's speech on sexism in politics.

Impact of the IT Revolution

Unexpectedly, some aspects of the IT Revolution do not enlarge and deepen our understanding of the world, but make it more immediate, personal, regional and tribal. This is a significant (but not the only) aspect of social media, personal/ self-referential, immediate, material, trivial – the smart phone as the 'new best friend', a love object in itself. We can communicate very rapidly, for example on Twitter, in ways that are shallow and non-reflective. Emphasis is on the personal and the immediate ('RUOK?'), not on seeking out the universal. Advocacy and analysis has largely dropped out of politics and been replaced by marketing and sloganeering. Politicians share the blame as well, as consenting adults.

Paradoxically, the age of the Information Revolution, which should have been an instrument of personal liberation and an explosion of creativity, has been characterised by domination of public policy by managerialism, replacement of 'the public good' by 'private benefit', the decline of sustained critical debate on issues leading to gross oversimplification, the relentless 'dumbing down' of mass media, linked with the cult of celebrity, substance abuse and retreat into the realm of the personal, and the rise of fundamentalism and an assault on reason. The Knowledge Revolution ought to have been a countervailing force: in practice it has been the vector of change.

We should put science and research higher on the political agenda (as medical research already is). Research must be regarded as an investment (positive) not as a cost (negative), while recognising that there will inevitably be failures. Successful outcomes (Bionic ear, Wi-Fi, the Square Kilometre Array, cervical cancer vaccine, research on dark matter and dark energy) have global potential. However, scientific vocations are falling in Australia, and this has important implications for our future economic and scientific capacity. Governments have an obligation to take up and understand the challenges raised by science, reach a national consensus in promoting research, encourage investment in science-based products for which there is international demand. Australia should take a global role in encouraging other major polluters to devise strategies to abate climate change, accept the transition to a post-carbon world, and use its scientific and engineering skills to promote renewable energy capacity,

improved energy efficiency, alternative power sources (wind, solar, geothermal) and reduced dependence on fossil fuels.

Education for life – not merely to fit the requirements of next year’s labour market – must be a national priority. Education should be recast to emphasise thinking, understanding, analysis, creativity and self-realisation, with less emphasis on pedagogy, following a set of rules to create economic units. There should be stronger emphasis on science, music, languages, history and philosophy. Use the capacity of IT to expand understanding, examining conflicting or complex ideas and promote personal growth, rather than merely reinforcing the familiar, trivial and immediate, preparing students for a lifetime. Seek access to the masterpiece (despite its complexity and challenge) rather than always settling for the familiar best seller – in all art forms. We need to resolve current confusion between alternate educational models for Australia – split-level, Confucian, American: perhaps Finland and Reggio Emilia (Italy) have more to offer. We should restore universities to being communities of scholars, rather than trading corporations.

Infantilisation of Debate. The Quantum paradox in Education.

I hesitate to put the proposition that the relationship between graduate numbers in the community and the quality of political debate is inverse, but it could be seriously debated. We appear to be lacking in courage, judgment, capacity to analyse or even simple curiosity, except about immediate personal needs.

But – if it’s a consolation – we are not alone.

Serious declines in the quality of debate on public policy have also occurred in the Britain, the US, Canada and Europe. The British journalist Robert Fisk has called this ‘the infantilisation of debate’.

Debates on such issues as climate change, population, taxation, refugees, mandatory detention and offshore processing, plain packaging of cigarettes, limitations on problem gambling, and access to water, have been deformed by both sides resorting to cherry-picking of evidence, denigration of opponents, mere sloganeering, leading a trivialization of democracy, treating citizens as if they were unable to grasp major issues.

Lying and exaggeration have become staples in campaigning and in the media and attempts to demand accountability are rejected as attacks on free speech. (In the US, it was commonplace to assert that Barack Obama was a Muslim, born in Kenya.)

There is a strong anti-intellectual flavour in public life, sometimes described as philistine or – in Australia – ‘bogan’, leading to a reluctance to engage in complex or sophisticated argument and analysis of evidence, most easily demonstrated in the anti-science push in debate about vaccination, fluoridation, and global warming.

Complex Challenges: Trivial Responses

Although generally reluctant to add to the use of jargon and spin, I should make a passing reference to what psychologists call the Dunning-Kruger effect.

As *Wikipedia* describes it:

The Dunning–Kruger effect is a cognitive bias in which unskilled people make poor decisions and reach erroneous conclusions, but their incompetence denies them the metacognitive ability to recognize their mistakes. The unskilled therefore suffer from illusory superiority, rating their ability as above average, much higher than it actually is, while the highly skilled underrate their own abilities, suffering from illusory inferiority. Actual competence may weaken self-confidence, as competent individuals may falsely assume that others have an equivalent understanding. As Kruger and Dunning conclude, "the miscalibration of the incompetent stems from an error about the self, whereas the miscalibration of the highly competent stems from an error about others"

Dunning and Kruger had some distinguished predecessors. Charles Darwin noted, ‘Ignorance more frequently begets confidence than does knowledge’ and Bertrand Russell wrote, ‘One of the painful things about our time is that those who feel certainty are stupid, and those with any imagination and understanding are filled with doubt and indecision’.

The changing of attitudes on the issue of Australia becoming a republic in younger citizens, disclosed in recent surveys, suggests that social media may be having an impact – that there is heavy emphasis on personalities: the fairy tale or Downton Abbey view of life, with Wills and Kate as attractive figures, Harry as the family idiot, the Queen as ever reliable granny, the Duke as a barking eccentric, Charles and Camilla as oddly ambiguous figures. Would we miss them? Apparently. They seem to be addictive.

On the thorny and contested issue of the human contribution to climate, Robert Manne in an essay in *The Monthly* (August 2012), ‘A Dark Victory’, explains the logic of political denialism: ‘The climate scientists have to be right 100% of the time, or their .01% error [is used to show] they are frauds. By contrast, the deniers only have to be right .01% of the time for their narrative...to be reinforced by the media.’

The idea that scientists who carry out research which supports the mainstream science on anthropogenic global warming (AGW) are richly rewarded for their efforts by Government (which Governments, I wonder?) is an exact inversion of the truth. Funding and publicity is far more likely for people in the denialist camp (Lord Monckton, Ian Plimer, Bob Carter) because they are so few, and because creating uncertainty is money in the bank for fossil fuel corporations and for sympathetic media outlets, especially News Limited.

Some redefinitions:

I have been careful not to talk about current political matters but I would like to conclude with two propositions, that there should be serious national debate (I'm not holding my breath) about defining, or redefining, two important subjects – politics and education. Surprising as it may seem, there appears to be no legislation on education, anywhere, in any country, which actually defines education.

I tentatively propose the following:

Education is a combination of processes, both formal and informal, that stimulate the growth of mental capacity, influence the potential of humans, aim at individual development, understanding, and independence, encompass the teaching of specific skills and nurture knowledge, judgment, values and wisdom, transmit culture and social adaptation, but also encourage exploration, self discovery, using time effectively and learning for a lifetime, strengthening self-image, and encouraging creativity, balance, open-mindedness, questioning, respect for others and humane common sense.

Perhaps even more important, we need to redefine politics – and grasp its importance, not just at election times.

Politics is the fault line between tectonic plates in society and the electoral struggle is an expression of, or a metaphor for, unresolved, often unspoken, divisions within society - race, class, gender, religion, region, language, education, sexuality, consumption patterns and time use, self-definition and the expression of individual differences/ aspirations (both positive and negative), offering a choice between different moral universes.

This is the underside of politics. We see only the tip of the iceberg.

Pascal and Talleyrand

I often invoke the words of three celebrated French thinkers, Michel de Montaigne, author of the wonderful *Essays* (a form that he virtually invented), the philosopher and mathematician Blaise Pascal and Prince Charles de Talleyrand, statesman, diplomat and cynic who survived both the French Revolution and the Napoleonic era.

I will only refer to two of them in this address.

Pascal, in his collection called *Pensées* (*Thoughts*, in English), proposed his celebrated ‘wager’ on the existence of God, by speculating on the outcomes of contrary hypotheses.

I have formulated my own variant of ‘Pascal’s wager’ and applied it to the climate change controversy.

- If we take action and disaster is averted, there will be massive avoidance of human suffering.
- If we take action and the climate change problem abates for other reasons little is lost and we benefit from a cleaner environment.
- If we fail to act and disaster results then massive suffering will have been aggravated by stupidity.
- If we do not take action and there is no disaster, the outcome will be due to luck alone, like an idiot winning the lottery.

Talleyrand observed that in major areas of policy, ‘Not to choose *is* to choose’.

The remark is very profound.

Drifting, postponement, failure to think, failure to choose is not a neutral act, it is a negative decision, a default position. Using complexity, and a failure to understand the science as a pretext for inaction is an outcome, a decision (however feebly reached) to say and do nothing.

Ten National (and Global) Priorities

- 1.** We must redefine politics – and grasp its importance, not just at election times. Politics is the fault line between tectonic plates in society and the electoral struggle is an expression of, or a metaphor for, unresolved, often unspoken, divisions within society - race, class, gender, religion, region, language, education, sexuality, consumption patterns and time use, self-definition and the expression of individual differences/ aspirations (both positive and negative), offering a choice between different moral universes. This is the underside of politics. We see only the tip of the iceberg.
- 2.** Managerialism has largely pushed the politics (i.e. ideological commitment and dialectic) out of politics. Generic managers promoted the use of ‘management-speak’, a coded alternative to natural language, only understood by insiders, exactly as George Orwell had predicted. The managerial revolution involves a covert attack on democratic processes because many important decisions are made without public debate, community knowledge or parliamentary scrutiny. Many elected leaders in 2012 are not politicians in the historic sense, who campaign passionately for a set of beliefs/ values and set out to change the world: they are essentially managers or technicians who are process driven and concentrate on how systems work, or interest groups interact, and have little engagement with the history of the nation or the philosophy and traditions of their party. They reject ideology and promote pragmatism. Political parties are managed by factions, essentially a form of

privatisation. Managerialism asserted that relying on specialist knowledge and experience might create serious distortions in policy-making, and that generic managers, usually accountants or economists, would provide a more detached view: accordingly expertise was fragmented with vital decisions being determined by a managerial mindset and experience. Expertise has been ‘hollowed out’ in many government departments and advice is often sought externally, from management consultants or expert panels. This leads to major weaknesses on policy formulation, compounded by extreme partisanship in political life and media reporting. Universities are no longer just communities of scholars but also trading corporations. The BBC is full of impressively qualified managers, but this does not mean that they have a clue about investigative journalism or how programs are made. Vested interest is almost always more powerful than community interest.

2A. Evidence-based policies and actions must be a central principle in the working of our system and reliance on populism and sloganeering must be rejected,.

3. Tackling complex problems will demand complex solutions (e.g. refugees, climate change) which cannot be reduced to parroting a few simple slogans (‘turn back the boats’, ‘stop this toxic tax’.) ‘Retail politics’, sometimes called ‘transactional politics’, where policies are adopted not because they are right but because they can be sold, is a dangerous development and should be rejected. We must maintain confidence that major problems can be addressed – and act accordingly. Revive the process of dialogue: explain, explain, explain, rejecting mere sloganeering and populism. We need evidence-based policies but often evidence lacks the psychological carrying power generated by appeals to prejudice or fear of disadvantage (‘They are robbing you...’) A voracious media looks for diversity and emotional engagement, weakening capacity for reflection and serious analysis, compounded by the rise of social media where users, typically, seek reinforcement of their views rather than being challenged by diversity. Social media, with its emphasis on immediacy of response (especially Twitter) may emphasise shallow and non-reflective communication without examination or analysis of data. However, it should be recognised that social media played a significant role in getting out the vote in the 2012 Presidential election and created international interest in, and approval, for Prime Minister Gillard’s speech on sexism in politics.
4. Infantilisation of debate, with its emphasis on gross oversimplification, personal politics, tribalism, rejecting the need for an evidentiary base for

argument, has become standard practice. We observe appeals to fear, greed and the short-term which deforms and degrades our national discourse and capacity for self-definition and goal setting. (The phenomenon is common in Australia, the US, the UK and much of Europe). The Parliament must conduct serious, comprehensive, evidence-dependent debates on major issues (refugees, population, water, violence, addiction, foreign policy.) Citizens have a moral responsibility to engage with the political parties that they habitually vote for. Nevertheless, despite an intransigent Opposition and relentless hostility from much of the media, the 'hung Parliament' elected in 2010 has a formidable legislative record (carbon, price, national disability scheme, plain packaging of cigarettes, Minerals Resource Rent Tax, marine parks, infrastructure investment, National Broadband Network.) The refugee/asylum seeker issue is unresolved, and some other issues (human rights, law reform, constitutional change, indigenous affairs) remain contentious and have poisoned the Parliament and turned rational debate into a mirage. Lying and exaggeration have become staples in campaigning and in the media and attempts to demand accountability are rejected as attacks on free speech. (In the US, it was commonplace to assert that Barack Obama was a Muslim, born in Kenya.) There is a disturbing conflict between evidence v. opinion ('You have evidence, but I have strong opinions.') and political processes tend to be driven by opinion rather than evidence in a short political cycle.

5. Scientific method, rational analysis and evaluation of evidence has been a central factor in defining Western society and culture since the 18th Century, and these skills can be/ should be applied to a variety of disciplines – politics, law, economics, social sciences, health. Scientists have come under unprecedented and damaging attacks arising from the climate change controversy. It is essential to distinguish between scientific scepticism (an essential element in the evaluation of evidence) and cynicism (dismissing evidence, however compelling, to promote confusion and inaction.) **Immunisation.**
6. We should put science and research higher on the political agenda (as medical research already is). Research must be regarded as an investment (positive) not as a cost (negative), while recognising that there will inevitably be failures. Successful outcomes (Bionic ear, Wi-Fi, the Square Kilometre Array, cervical cancer vaccine, research on dark matter and dark energy) have global potential. However, scientific vocations are falling in Australia, and this has important implications for our future economic and scientific capacity. Governments have an obligation to take up and understand the challenges raised by science, reach a national

consensus in promoting research, encourage investment in science-based products for which there is international demand. Australia should take a global role in encouraging other major polluters to devise strategies to abate climate change, accept the transition to a post-carbon world, and use its scientific and engineering skills to promote renewable energy capacity, improved energy efficiency, alternative power sources (wind, solar, geothermal) and reduced dependence on fossil fuels.

7. Education for life – not merely to fit the requirements of next year’s labour market – must be a national priority. Education should be recast to emphasise thinking, understanding, analysis, creativity and self-realisation, with less emphasis on pedagogy, following a set of rules to create economic units. There should be stronger emphasis on science, music, languages, history and philosophy. Use the capacity of IT to expand understanding, examining conflicting or complex ideas and promote personal growth, rather than merely reinforcing the familiar, trivial and immediate, preparing students for a lifetime. Seek access to the masterpiece (despite its complexity and challenge) rather than always settling for the familiar best seller – in all art forms. We need to resolve current confusion between alternate educational models for Australia – split-level, Confucian, American: perhaps Finland and Reggio Emilia (Italy) have more to offer. We should restore universities to being communities of scholars, rather than trading corporations.
8. Distinguish between population policy and immigration practice. Recognise that, given Australia’s geography and our urban tradition of huge, dispersed cities, each additional million in population will have serious impacts on the environment and social networks. We could accommodate additional population but only if we change behaviour and give things up (high energy consumption, car based cities, damaging the biota.) Rethink Australia’s use of premium water, and create infrastructure to promote water re-cycling for industry and sewerage. Make appropriate policy responses to dramatic increases in longevity.
9. Recalibrate Australia’s foreign policy, asserting our priority to be an honest broker in resolving international or regional conflicts and tackling global issues such as the loss of sustainability, water and food security rather than being automatically co-opted as a military participant in coalitions for the more-or-less willing. We need to sign a peace treaty in ‘the history wars’, redefine patriotism and distinguish it from military sacrifice. Should we be celebrating Antarctica with Mawson (ceremonial dinner, February 1912, as suggested by Tom Griffiths) rather than Gallipoli (Anzac Day, 1915)? Is the military funeral to be regarded as a

central expression of our civic culture? Except in sport, we have avoided the patriotic excesses of our trans-Pacific partners and we are generally prepared to accept that in some areas we can learn from the experience of others.

10. Act courageously to enlarge the national political agenda. Address the next stage of Aboriginal reconciliation to promote better health, better education, more self-reliance and reduce substance abuse and domestic violence. Settle the Murray-Darling issues of water use and the conflicts over states' rights, the environment and quotas for irrigators. Revive the issue of Australia becoming a republic, explain why the change would be important (especially in the context of updating the Constitution) and demonstrate how Australia's robust democratic institutions can tackle and resolve complex issues. The priority is to be honest in redefining who we are and what we stand for.

VERSION 2

MAJOR ISSUES THAT NEED CONSIDERATION

1. **REDEFINING POLITICS.** Politics must be redefined so that we grasp its importance, not just at election times. Politics is the fault line between tectonic plates in society and the electoral struggle is an expression of, or a metaphor for, unresolved, often unspoken, divisions within society - race, class, gender, religion, region, language, education, sexuality, consumption patterns and time use, self-definition and the expression of individual differences/ aspirations (both positive and negative), offering a choice between different moral universes. This is the underside of politics. We see only the tip of the iceberg.

2. **THE MANAGERIAL REVOLUTION.** We live in the age of the Information Revolution, but it is also the age of the cult of management, which became a dominant factor in public life, exactly as James Burnham had predicted in *The Managerial Revolution* (1941), a book long ahead of its time. In Britain in the Thatcher era, and in Australia, after 1983, there was a growing conviction that relying on specialist knowledge and experience might create serious distortions in policy-making, and generic managers, usually accountants, or economists, would provide a more detached view. The politics (that is, serious debate on ideological issues) has virtually dropped out of politics and has been replaced by a managerial approach. The use of focus groups and obsessive reliance on polling and the very short news cycle means that the idea of sustained, serious, courageous analysis on a complex issue – the treatment of asylum seekers, for example – has become almost inconceivable. Generic managers promoted the

use of ‘management-speak’, a coded alternative to natural language, only understood by insiders, exactly as George Orwell had predicted. The managerial revolution involves a covert attack on democratic processes because many important decisions are made without public debate, community knowledge or parliamentary scrutiny. Education, Health, Sport, the Environment, Law, even Politics, are often treated as a subset of management, with appeals to naked self interest and protecting the bottom line. At its most brutal the argument was put that there were no health, education, transport, environment, or media problems, only management problems: get the management right, and all the other problems would disappear. As a result, expertise was fragmented, otherwise, health specialists would push health issues, educators education, scientists science, and so on. The inexorable march of the MBAs (Masters of Business Administration) since the 1980s has had a tremendous impact inside government and corporations, leading to decisions on vital matters being determined by a managerial mindset and experience, rather than by professional expertise in relevant subject matter. It may be significant that George W. Bush was the first US President with a MBA (from Harvard). It is striking that of eight current Directors-General/ CEOs of Education in Australia (six State, two Territorian), judging from their entries in *Who’s Who in Australia*, only two (in the ACT and NT) admit to having had any teaching experience or qualifications. Universities have become trading corporations, not just communities of scholars. Political parties are managed by factions, essentially a form of privatisation.

3.

4.

EVIDENCE V. OPINION. TIME- USE VALUE. TIME BUDGETTING: SELF-MANAGEMENT OF TIME.

Education must encourage development and redefinition of a new sense of ‘time-use value’. Individual time management should be liberating, but in practice many feel a psychological inhibition because of self-doubt about judgment. Even more people feel uneasy about the passage of time and have a desperate need to desensitise it. They ‘kill time’ by alcohol and drug abuse, especially smoking. Also, some reject objective, ‘linear’ time, ie clock time, as Sir Isaac Newton described it, and prefer to experience subjective, spatial time, a concept which moves backwards, forward and sideways, brilliantly illustrated in Marcel Proust’s great novel sequence *In Search of Lost Time*. Capacity to manage time is the major distinction between those who exercise power and those on whom it is imposed – the ‘Who/Whom?’ question that Vladimir Ilyich Lenin often raised.

This is central to lifelong education. Time is the medium in which we live, the only irreplaceable resource. Using it effectively involves setting priorities. But there is a paradox: time management, historically, was an instrument of

external control. Friedrich Engels, Marx' collaborator, argued that the clock, not the steam engine, was the central tool of the Industrial Revolution. The imposition of discipline by the manager in the factory system was essential to the model of mass production established by Henry Ford. It was central to the organisation of schools, and in public transport. Traditionally, value has always been *externally* conferred, usually by a superior (e.g. parent, teacher or employer). We find it virtually impossible to impute it to ourselves.

Relevance v. timelessness/Training v. education

A major problem for educators is finding a balance between particular/local/concrete/immediate/familiar factors and values and general/universal/abstract/timeless/unknown ones. One educational model, with the goals of 'relevance', and 'job training', reinforces the experience of things seen, heard and felt every day. The other pursues ideas and experiences that are out of everyday knowledge, or even imagination. Training is short-term, hierarchical and work centred; education is for personal development and competence. At its worst, emphasis on the local can lead to an oppressive narrowness – domination by locality and temporality (here and now), reinforcement of tribal values, prejudices or tradition: 'there is only one way to do things, and that's the way we do them around here', and to an essentially instrumental view of life. The appeal of the general is the assertion of universal values and infinitely varied experiences: we can learn from each other. Unfortunately the 'big picture' is so diverse that it may lead to a very slight sampling of a smorgasbord of human experience. The constant tensions – centre v. periphery, convergence v. divergence – can be destructive if specialisation and a sense of personal competence appear to be out of reach. Mastering Chinese is in the demonstrated competence of 1.2 billion people but outside the range of most Australians.

ACE REVISED 3 May 2013

1. REDEFINING POLITICS [objectives]
2. EVIDENCE v. OPINION [outcomes]
3. SCIENTIFIC/ANALYTICAL METHOD [how we do it]
4. DEALING WITH COMPLEXITY [Brain structure. Language. Music. Out of the caves. 'Keep it simple, stupid' – KISS – Clinton mantra],
5. TIME-USE VALUE
6. IMPACT OF I.T. REVOLUTION [the universal and infinite? Or the personal and immediate? Solipsoid. Trivial]
7. RETAIL v. CONVICTION POLITICS
8. INFANTILISATION OF DEBATE. THE QUANTUM PARADOX IN EDUCATION.
9. OPEN v. CLOSED SOCIETY/ INSTITUTIONS [Assange. War on terror. Torture]

- 10. EDUCATION v. PEDAGOGY?
- 11. CREATIVITY, Depth + range. Masterpiece or best seller?
- 12. MANAGERIALISM [Jennifer Westacott]
- 13. MULTICULTURAL SOCIETY v. MONOCULTURAL SYSTEM
- 14. AUSTRALIAN EXCEPTIONALISM

MAJOR ISSUES THAT NEED CONSIDERATION

REDEFINING POLITICS. Politics must be redefined so that we grasp its importance, not just at election times. Politics is the fault line between tectonic plates in society and the electoral struggle is an expression of, or a metaphor for, unresolved, often unspoken, divisions within society - race, class, gender, religion, region, language, education, sexuality, consumption patterns and time use, self-definition and the expression of individual differences/ aspirations (both positive and negative), offering a choice between different moral universes. This is the underside of politics. We see only the tip of the iceberg.

EVIDENCE V. OPINION. A central dilemma in democracy is that just as everyone's vote is regarded as being of equal value, does it follow that every opinion is of equal weight, and that hard knowledge and experience lacks intrinsic authority? The Welsh geneticist Steve Jones asks an important question: If there is a division of scientific opinion, with 999 on one side, and one on the other, how should the debate be handled? Should the one dissenter be given 500 opportunities to speak?

It is a serious issue.

Sovereignty of opinion v. Sovereignty of evidence.

5. Currently, in Australia there is a disturbing conflict between evidence v. opinion ('You have evidence, but I have strong opinions.') on a number of issues – climate change, treatment of asylum seekers, immunization, fluoridated water – and political processes tend to be driven by opinion rather than evidence in short electoral and news cycles. We need evidence-based policies but often evidence lacks the psychological carrying power generated by appeals to prejudice or fear of disadvantage ('You are being robbed...', 'We are being invaded...', 'Vaccination will harm your child...', 'Global warming is a hoax...'). Not only our Parliaments but the communities in it, including our major institutions, must conduct serious, comprehensive, evidence-dependent debates, backed up with honest, detailed use of statistics, on major issues (refugees, population, water, violence, taxation, addiction, foreign policy.) Often they seem to have taken a collective vow of silence.

SCIENTIFIC/ ANALYTICAL METHOD. Scientific method, rational analysis and evaluation of evidence has been a central factor in defining Western society and culture since the 18th Century, and these skills can be/ should be applied to a variety of disciplines – politics, law, economics, social sciences, health. Scientists have come under unprecedented and damaging attack arising from the climate change controversy. It is essential to distinguish between scientific scepticism (a central element in testing evidence, for example Karl Popper’s falsifiability test) and cynicism (dismissing evidence, however compelling, to promote confusion, inaction or vested interest.) Scientific vocations are falling in Australia, and this has important implications for our future economic and scientific capacity. Governments have an obligation to take up and understand the challenges raised by science, reach a national consensus in promoting the importance of science in our national life, encourage investment in science-based products for which there is international demand.

Climate change: easier to sell the message during a period of prolonged drought. The breaking of the drought proved to be a political disaster for Rudd.

Political process works on an assumption of common, or shared, knowledge – which may be more fragile than we are prepared to recognise.

There are three areas of attack against expertise and taking a long term, analytical view of the world – from the Right, the Left and the anxious Centre.

The debate on climate change, especially anthropogenic global warming (AGW), has been a particularly disturbing illustration of how ill-equipped we seem to be in conducting serious debate and employing experimental method.

Right: attack by the minerals industry generally, especially coal and much (not all) of the oil industry, electricity generators. Highly personal, often abusive, sometimes threatening.

The anxious centre includes people working in a particular industries and particular regions (La Trobe Valley, Hunter Valley, Tasmanian forests), understandably anxious about job losses, without much prospect of job creation. The trade union movement is deeply divided on this – as is the business community.

But from the Left, or some segments of the intellectual left, a deconstructionist mind-set has partly undermined an evidence-based approach to policy making or problem solving.

The pluralist or deconstructionist or post modern theory of knowledge is contemptuous of expertise, rejects the idea of hierarchies of knowledge and asserts the democratic mantra that – as with votes in elections – every opinion is of equal value, so that if you insist that the earth is flat, reject vaccination for children or deny that HIV-AIDS is transmitted by virus, your view should be treated with respect. Similarly, there has been a rejection of expertise and or taste – rejecting the idea of people like Harold Bloom, or me, that there is a ‘Western canon’ which sets benchmarks. No, say the deconstructionists, the paintings of Banksy, the mysterious British graffiti artist, are just as good as Raphael, that hip-hop performances are just as valid as Beethoven’s Opus 131.

IMPACT OF THE IT REVOLUTION. The great hope of the Unexpected impact of the IT Revolution – social media, personal/ self-referential, immediate, material, trivial – the smart phone as the ‘new best friend’, a love object in itself. Media – old and new – is partly to blame. Revolutionary changes in IT may be even more important, where we can communicate very rapidly, for example on Twitter, in ways that are shallow and non-reflective. Emphasis is on the personal and the immediate (‘RUOK?’), not on seeking out the universal. Advocacy and analysis has largely dropped out of politics and been replaced by marketing and sloganeering. Politicians share the blame as well, as consenting adults. Paradoxically, the age of the Information Revolution, which should have been an instrument of personal liberation and an explosion of creativity, has been characterised by domination of public policy by managerialism, replacement of ‘the public good’ by ‘private benefit’, the decline of sustained critical debate on issues leading to gross oversimplification, the relentless ‘dumbing down’ of mass media, linked with the cult of celebrity, substance abuse and retreat into the realm of the personal, and the rise of fundamentalism and an assault on reason. The Knowledge Revolution ought to have been a countervailing force: in practice it has been the vector of change.

DEALING WITH COMPLEXITY.[Brain structure. Language. Music. Out of the caves. ‘Keep it simple, stupid’ – KISS – Clinton mantra].

Science, complexity and the common-sense view of the world.

There is a major problem about explaining some of the major issues in science, and has been ever since science began.

Some fundamental scientific discoveries seem to be counterintuitive, challenging direct observation or our common-sense view of the world.

Common sense, and direct observation, tells us that the Earth is flat, that the Sun (like the Moon) rotates around the earth and that forces don’t operate at a distance.

Then along come the Greek scientists and later Copernicus and Galileo who say, ‘Your common sense observation is wrong. Earth is a spheroid. The orbits of Sun and Moon are completely different, although they appear to be identical. Our use of the terms “sunrise” and “sunset” preserves this misunderstanding.’

Later still, electronics enabled us to do thousands of things remotely, using forces at a distance, setting alarms and opening garage doors, or receiving signals (radio, telephony, television,).

The most obvious disjunction between science and common sense is the question: ‘, Right now, are we at rest or in motion?’

Common sense and direct observation suggests that we are at rest.

But science says, ‘Wrong again. We are moving very rapidly. The earth is spinning on its axis at a rate of 1669 kph at the equator, and in Melbourne (38°S) about 1317 kph. We are also orbiting round the Sun even faster, at nearly 30 kps, or 107, 200 kph. There is a third motion, even harder to measure, as the galaxy expands – and it’s speeding up, as our new Nobel Laureate, Brian Schmidt, postulates.

But, sitting here in Carlton, it is hard to grasp that we are in motion, kept in place by gravity.

Psychology resists it –and essentially we have to accept the repudiation of common sense on trust.

I would challenge anyone here to reconcile common sense and quantum theory or to satisfactorily explain the Higgs boson or –hardest of all – to define gravity.

INFANTILISATION OF DEBATE. THE QUANTUM PARADOX IN EDUCATION. Currently, in Australia, this is by far the best educated cohort in the nation’s history. The 2011 Census indicated that there are 3.5 million people in the population with bachelor’s degrees or higher, about three times the number of blue colour workers. Just over 1,015,000 people (about 900,000 of them locals) are currently studying at Australian universities, both undergraduate and postgraduate. This educational abundance ought to mean that the conduct of our politics and public institutions generally are carried out at an unparalleled level of sophistication – really ‘world’s best practice.’ That’s what the numbers suggest. And yet the cold, hard reality suggests something different. Is there anybody here who looks forward to the 2013 election with keen anticipation? Is there anyone who recalls the 2010 campaign with pride

(although, oddly, one can argue that the output of the much derided hung Parliament has been of superior quality) ? Would anyone challenge the proposition that Hawke's 1983 election, or Gough Whitlam's 1972 election campaign (assuming that there is anyone here old enough, other than me, to remember) were intellectually more challenging than the current long campaign?

TIME-USE VALUE. TIME BUDGETTING: SELF-MANAGEMENT OF TIME. Education must encourage development and redefinition of a new sense of 'time-use value'. Individual time management should be liberating, but in practice many feel a psychological inhibition because of self-doubt about judgment. Even more people feel uneasy about the passage of time and have a desperate need to desensitise it. They 'kill time' by alcohol and drug abuse, especially smoking. Also, some reject objective, 'linear' time, ie clock time, as Sir Isaac Newton described it, and prefer to experience subjective, spatial time, a concept which moves backwards, forward and sideways, brilliantly illustrated in Marcel Proust's great novel sequence *In Search of Lost Time*. Capacity to manage time is the major distinction between those who exercise power and those on whom it is imposed – the 'Who/Whom?' question that Vladimir Ilyich Lenin often raised.

AUSTRALIAN EXCEPTIONALISM. In the United States the term 'American exceptionalism' is a matter of national congratulation – but Australian exceptionalism in education should be cause for concern. As the Gonski Report notes, in 2010 only 66 per cent of students attended Government [public] schools with the remaining 34 per cent attending non-government [private] schools, 20 per cent in Catholic schools (systemic and 72 non-systemic) and 14 per cent in independent schools, including not only high-fee paying schools but Anglican, Lutheran, Muslim, Jewish, Adventist, Steiner and other denominational or ethnic based schools. In the past five years Catholic schools had increased their enrolments by 6 per cent and independent schools by 14 per cent.

PISA (Programme for International Student Assessment)

The OECD average for attendance in government schools is 88 per cent. Norway ranks highest with 98.6 per cent and Finland, which scores outstandingly in international educational rankings, has 96.1 per cent. The Australian figure (59.7 per cent) is far behind New Zealand, with which we might assume having the closest affinity (94.3 per cent), Canada (92.5 per cent), the United Kingdom (93.7 per cent), the United States (91.2 per cent), Germany (94.9) and Sweden (90.0 per cent). Like Australia, there are anomalies – Chile

is on 42.0 per cent, Ireland on 38.5 per cent, and the Netherlands (34.0 per cent) and Belgium (30.5 per cent), are even lower.

RETAIL v. CONVICTION POLITICS. As a society Australia faces a hollowing out of values. We live in the era of retail politics. Politicians no longer ask about a proposition, ‘Is it right? Is it the best thing to do?’ but instead, ‘Will it sell? How can we put a spin on it?’

It was striking that at the Australia 2020 Summit (2008), education was characterised as being party of the Productivity Agenda, with the emphasis on measurable economic outcomes – KPIs, in fact with little or no interest in the importance of encouraging creativity and personal development...

Just thirty years ago, in 1983, there was a national debate about the proposed damming of the south-west wilderness area of Tasmania for the production of hydroelectricity as against the preservation of Heritage values. As it happened the ALP, led by Bob Hawke, took a strong line, although it was deeply unpopular in Tasmania with members of construction unions. The Coalition was split – Malcolm Fraser was sympathetic to saving the Gordon-below-Franklin wilderness area, but his party was very much committed to States’ rights issues and suspicious of increased Commonwealth powers in the environment. Labor won (although seats were lost in Tasmania), the law was changed, the heritage area was saved, the High Court gave the process a big tick and we moved on. Nobody in politics, even Tasmania, wants the Gordon-below-Franklin wilderness area inundated a new power stations built.

But in 2013 the debate about the future of the Tarkine wilderness area has worked out in a completely different way. ‘Jobs! Jobs! Jobs!’, which could be translated as ‘Votes! Votes! Votes!’, is now the priority and the environment has fallen off the agenda. There is, I think, no possibility that the Tasmanian dams controversy of 1983 would have had the same outcome in 2013.

Pedagogue *paidagōgos*, the slave who escorted children to school.

[παιδαγωγός](#) (*paidagōgos*),

Once players were amateurs, but now Sport is big business, with managers, endorsements, sponsorships and multi-billion dollar media deals for the codes.

Universities have become trading corporations, not just communities of scholars. Political parties are managed by factions, essentially a form of privatisation.

EDUCATION v. PEDAGOGY. In the challenging period when I chaired the Victorian Schools Innovation Commission (2001-05), the State Government was planning a major consolidation of the State's legislation on education and VSIC was invited to make a submission. I spent a long time examining the legislative framework for education in many nations, states and provinces and was struck by the fact that none even attempted to define education, even in summary form. VSIC adopted my long and comprehensive (but, I think, defensible) definition and we put it in our submission.

It read:

Of course the definition did not appear in the Educational and Training Reform Bill (2006). I suspect that our proposed definition of 'Education' may have been the final nail in VSIC's coffin, because it did not pay enough homage to instrumentalism, managerialism and pedagogy, and was too open, too speculative, too Platonic. Managers love pedagogy but are deeply suspicious of education.

I may also have contributed to VSIC's problems by giving books to the Minister and the Secretary and proposing to discuss education with them. We were never able to persuade the Secretary to attend a VSIC meeting and I thought he developed quite a hunted look when our paths crossed.

It is instructive to compare the quality of debate in the Victorian Legislative Assembly on the Education Act in 1872 with the debate in 2006? Would anyone argue that they were comparable? The 2006 Education and Training Reform Act incorporated the 1872 parent Act. After 133 years one might have hoped that the debate would be of higher quality than in 1872, when the MPs (all male) would have included on a handful of graduates but Hansard does not suggest it. In 1872 the Minister (Wilberforce Stephen) argued that his legislation was 'altogether a new experience as regards the British race'. Nobody made a comparable claim in 2006 and not one media outlet reported the debate.

Education as commodity? How creativity fell off the agenda and labour market factors took over. Will Gonski be the solution?

Australia, regarded as a great educational pioneer a century ago, faces fierce competition both in our region and internationally. The Managerial Revolution and the Information Revolution have both emphasised the immediate and tangible, especially labour market demands, at the expense of creativity, imagination, reflection and lifelong learning. Can the Gonski Report reverse middle class flight from public education? Is the grip of retail education too strong to break?

Public education, middle-class flight, the downside of the IT revolution, and the search for creativity.

Education: Public education as a residual category, falling international standards.

Curiously, Education was never defined in successive Victorian Education Acts – or in legislation anywhere, so far as I could find. My attempt, long though it is, was comprehensive, and VSIC endorsed it:

One of our self-imposed tasks in VSIC was to propose a definition of Education, something that – incredible as it sounds – had never been attempted in Victoria’s Education Acts.

Our definition of ‘Education’ may have been the final nail in VSIC’s coffin, because it did not pay enough homage to instrumentalism, and was too open, too speculative, too Platonic. I may also have contributed to VSIC’s problems by giving books to the Minister and the Secretary and proposing to discuss education with them. We were never able to persuade the Secretary to attend a VSIC meeting and I thought he developed quite a hunted look when our paths crossed.

Pedagogy v. Education

The distinction between ‘traditional’ and ‘current’ models goes back to the time of the ancient Athenians.

Education was divided into two categories, Pedagogy (one of my least favourite words) and Philosophy.

The pedagogue (παιδαγωγός , paidagōgos), was the slave who escorted children to school and I am puzzled that many who use the term have not speculated about its origin.

Education or Pedagogy? Breadth or Depth? ‘It’s the economy, stupid’, or whole of life? Is education to be seen as a closed system with all the KPIs (‘Key Performance Indicators’) set like ducks in a row, or an open system with emphasis on creativity and mastery of labour/time-use value? Learning to connect? School and its competitors. The downside of managerialism in education – while allowing for an upside too. The measurement controversy: that the only things of importance can be reported on precisely (while creativity cannot).

The philosopher Isocrates (not to be confused with the better known Socrates) was a practitioner of ‘rhetoric’, or as we would now say, ‘spin’. Isocrates said that an education system needed clients or patrons who would pay for the delivery of education services and he is associated with the word ‘pedagogy’, which literally means the training of slaves. Obedience, conformity and controllability were among the desired goals. The outcomes were certain.

Plato rejected rhetoric and pedagogy and insisted on ‘education’, the drawing out of individual talents, and encouraging the search for truth, value and meaning in life. In one system, the outcomes are predictable; in the other, they are uncertain.

Philosophy, literally ‘love of learning’, was intended to encourage the pursuit of truth, wisdom and self-discovery, irrespective of where it led. Its goals were uncertain.

In Australia in 2009, Pedagogy is the overwhelmingly dominant model but in practice it inevitably leads to self-limitation.

It was in the classical era in Greece that a major controversy began over the purposes of education, and it is with us still.

I have tried to set out the distinction between the two concepts while recognising that in practice there is considerable overlapping.

ISOCRATES

Pedagogy
Conservative

PLATO

Education
Radical

Instrumentalist	Values
School > Work	Whole of Life
Uniformity	Individuality
Vocational	Self discovery
Material	Intangible
Rule by the clock	Self-managed time
Closed systems	Open systems
Predictability	Creativity
Accountant	Artist
Lego	Plasticine
Bicycle	Frog
Static	Dynamic
Maintaining status quo	Transforming
Now	Future
Certainty	Uncertainty
Conventional	Innovative
Hierarchical	Egalitarian
Literacy/Numeracy	Multiple literacies
Measurable	Unquantifiable
Inclusion/exclusion	Quantum model
'Rock logic'	'Water logic'
Sequential	Holistic
Left Brain	Right Brain

The Isocratean approach is currently in high fashion, supported in Australia by governments of both major political persuasions.

Education or Pedagogy? Breadth or Depth? 'It's the economy, stupid', or whole of life? Education as a closed system with all the KPIs ('Key Performance Indicators') set like ducks in a row, or an open system with emphasis on creativity and mastery of labour/time-use value? Learning to connect? School and its competitors. The downside of managerialism in education – while allowing for an upside too. The measurement controversy: that the only things of importance can be reported on precisely (while creativity cannot).

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Gonski

One of the disturbing elements about the public and political reaction to the Gonski report has been the almost total preoccupation with money and the relative size of final adjustments with the States. This financial emphasis has meant that the essential philosophy, the argument, the rationale, the content, the context, has been virtually lost.

The education and socialisation of children has three overlapping elements – the home, the school and electronically through television, video games, computers, the iPhone, Wi-Fi, blogging, tweeting and personal networking. It may well be that structured learning in the school is the least significant of the three.

200 school days - say 6 hours per day in class (less, actually taking account of sport and other ex-classroom activity.) 1200 hours. (Total hours in year – 8760, so school accounts for 13.7 per cent).

Having done time as a house husband, Mark Latham writes with some authority on ‘home schooling’ in his recent **Quarterly Essay (QE49)**, *Not Dead Yet*, pages 40-47. ‘In the conventional wisdom, schools are seen as places where children do most of their learning... The major role models and opportunities for education are in the home. By age three, for instance, children have acquired more than half the language they will use for the rest of their lives. Schools, at best, are a useful addition to the learning continuum. At worst, they are places where students muddle through making only marginal gains in knowledge and skills’. I think he overstates his case – half the vocabulary by the age of three? He has always been dismissive of the whole concept of hierarchies of learning – so that he sees a diploma of pastrycooking from TAFE as being of equal value to, say, post-doctoral work on the physiology of the brain. Well, yes, in a way... but I would not want to push the democratic egalitarian model too far. He is also contemptuous of the high culture, music and the arts, or – to use the shorthand description – ‘civilisation’ as having no practical value, and therefore not worthy of public support or a priority in education.

500 at 3, 1200 at 4.

Victorian Schools Innovation Commission (VSIC)

In the era of the cult of management, Education (like Health, Sport, the Environment, Law, even Politics) is often treated as if all the problems can be solved by generic managers, and that expertise, experience or even serious research are irrelevant or perhaps undesirable.

There was a philosophical division between VSIC and DE&T. At VSIC we argued for an open, pluralistic, questioning model in education in which ideas were important and outcomes were uncertain. DE&T took an instrumentalist, rigid, determinist approach in which all outcomes were known, and formulae could be applied to specific problems. DE&T's corporate culture was defensive and inward looking, uneasy about ideas or controversy. It preferred to seek outside advice from management consultants on contract, where outcomes are predictable (and controllable).

In 2003, VSIC organised a 'Leading Edge Festival' to celebrate achievements in State schools and we planned to hold a public debate on education. This aroused deep alarm in DE&T and we were directed not to use the word 'debate'? What on earth could there be to debate about in education?

I thought that the best illustration of VSIC's role was that of the yellow-billed oxpecker (*Buphagus africanus*), the companion bird of the rhino which provides specialist assistance and advice, with only a tiny fraction of the rhino's resources and muscle. The Commission had to be careful about positioning itself. If it was too remote, out of sight from the Department, its work could appear abstract or irrelevant and be ignored. If it was too close, the Department might roll on top.

In 1942 Eleanor Roosevelt wrote: 'A democratic form of government, a democratic way of life, presupposes free public education over a long period; it presupposes also an education for personal responsibility that too often is neglected'. The Canadian thinker John Ralston Saul defined 'Public Education' as 'the single most important element in the maintenance of a democratic system'. I kept crusading for public education to be an instrument for personal and societal transformation. With the existing mind-set, education generally entrenches or reinforces existing abilities, or disabilities, advantages or disadvantages.

Even where parents have attended State Schools themselves, once they choose to send their children to private schools they generally cease to be effective advocates for the State system. Disturbingly, some DE&T officials had voted with their feet in choosing private schools for their offspring. Often they say: 'I believe in the State system, but Toby and Miranda have special needs, so we send them to private schools'. Toby and Miranda have already left. Will Jason and Kylie follow? If the State system broke down, the impact on social cohesion would be serious.

The strength of a large, comprehensive State system is that it permits/encourages diversity *inside* school and social cohesion *outside* it, rather than cohesion inside school and diversity (often harsh or fragmented) outside it.

We wanted to encourage the Department to tackle some major problems in Victorian Education. Pre-schooling is part of Victoria's Welfare system, not part of Education, at precisely the time when children are most susceptible to learning. Participation in Victorian State schools is strikingly lower than the national average, due to the phenomenon of 'middle-class flight'. While values are taught, and taught well, in State Schools, DE&T is in danger of losing the propaganda battle to the private schools due to its defensiveness.

Should we be aiming at mass learning, or individual learning? How do we, individually, impute a value to our own time use? Or is it always conferred, externally, by a superior? What is the relationship between time management and the problems of aggression, substance abuse, boredom, alienation and depression? How do we make some subjects more exciting for teachers and students? These were not issues that DE&T felt comfortable with.

The particular attraction of private education (apart from its unspoken appeal to social mobility, 'getting on' and a reinforcement of social stratification) is asserted to be its commitment to 'values', and this is inevitably assumed to be associated with church schools, whether the Catholic system, independent schools or the rapidly growing number of new faith-based schools. The critical assumption, more implied than asserted, is that State education is secular, materialistic, instrumental and uniform, aimed at the lowest common denominator, rather than recognising and encouraging individual capacity and diversity. John Howard attacked State schools as being 'too politically correct' and 'values-free'.

This conceptualisation, that private schools promote values while public schools are weak on values, is based on a misappropriation of the word 'values'. When private school advocates talk about values, they often refer to a circumscribed set of them: conformity, tradition, security and social power. The public school system promotes values too, but of a different kind, including equality, justice, diversity and tolerance. It is hypocritical not to recognise the distinction between what are in effect 'gated' schools, able to exclude potential students doctrinally and financially, and 'open door' schools which are community based, lacking the power (or desire) to exclude certain categories.

VSIC was concerned about potential conflict between State and non-State systems. The State system's 'open door' schools presuppose a society based on co-operation, emphasising mutuality of interest, avoiding segmentation or

stratification. ‘Gated’ schools recognise, accept and build on differentiation, competition, segmentation or stratification. The two systems are in a continuum. The businessman John Elliott used to threaten one of his daughters: ‘If you don’t behave, I’ll send you to a high school’. The threat apparently worked. As the State system strengthens, stratification/segmentation in society will reduce: but if the State system weakens, stratification/segmentation in society must increase. VSIC urged that as a society, we ought to be courageous enough to acknowledge and discuss these issues. In 2006, John Howard expressed satisfaction that State school enrolments had fallen by 22 per cent in his decade as Prime Minister. There was a growing risk that State education in Australia would be seen as a residual system for the poor, not the system of choice. A study in 2004 by the *Sydney Morning Herald* indicated that more than 70 per cent of parents of state school pupils would opt out if they could afford it, which would be a serious blow to social cohesion.

In February 2004 I represented VSIC at a large international conference, ‘Crossing Boundaries’, held in Reggio Emilia, in the Italian region of Emilia Romagna. Reggio Emilia’s experiment in pre-school and toddler education was initiated after World War II by Loris Malaguzzi (1920-1994), a charismatic psychologist, teacher, organiser and dramatist, politically on the Left. Malaguzzi was quoted as describing knowledge as ‘a tangle of spaghetti’, and I could relate to that. The Reggio Emilia schools were extremely impressive, suggesting that very small children were capable of surprisingly high levels of abstract reasoning and I learned a great deal.

After leaving Reggio, I went on to the OECD in Paris. In OECD’s building in La Défense I was struck by a philosophical and physical division between officials. On one side of the corridor were experts who insist that only factors which can be measured precisely (such as literacy, numeracy, height, weight, age) are important. On the other side of the corridor were experts who put more emphasis on creativity, together with imagination, empathy, compassion, musicality, all features which are notoriously hard to measure. The two groups, regrettably, did not talk to each other.

In 2005, the Minister announced that there were no plans to change pre-schooling arrangements in Victoria. It was simply ruled out of the Education system. Thirteen years at school is long enough. Nothing to discuss. Nothing to debate. End of story, even though imagination, creativity, courage and individuality is shaped in the pre-school years when the capacity to learn (language for example) is at its highest.

Ultimately, the Department persuaded the Minister to get rid of us. VSIC’s appropriation of \$1.4 million in an Education Budget of \$7 billion was

considered to be too high a proportion (0.02 per cent), especially when we kept raising questions that it did not want to think about. We had no warning and I heard the bad news on the wharf at Split in Croatia, when I was on leave in June 2005.

I probably contributed to VSIC's problems by sending books to the Minister and the Department's Secretary and proposing discussions about education issues. We were never able to persuade the Secretary to attend a VSIC meeting and he developed quite a hunted look when our paths crossed. My suggestion that Department directives, written in impenetrable 'management-speak', should be accompanied by a plain English translation, went down badly. So did my concern about over-reliance on management consultants who, anxious to ensure repeat business, told the Department exactly what it wanted to hear.

I asked one of the highest-ranking bureaucrats in the Department: 'In the Department, who will be interested in ideas after the Commission ends?' The response was immediate, and brutal, delivered, literally, head-to-head: 'Wrong question! We're not into ideas around here. We're into program delivery'. Treasury and Finance has provided two successive Secretaries of the Department of Education and Training. The chance that an experienced teacher might be appointed to head Treasury is very remote.

When researching the history of Victorian State education, I was deeply impressed by the quality of debate when the original Education Act (No. 449) was introduced in the Legislative Assembly in September 1872 and confidently claimed to be 'altogether a new experiment as regards the British race... an example to our progenitors in England'. Just 133 years later, the Victorian Education and Training Reform Act (2006) was a comprehensive consolidation of all educational legislation since 1872. None of its Parliamentary debates attracted any media coverage, and if there are new ideas in the Act they are hard to find.

Business and lobbyists

When I was Minister for Science, a politician who later succeeded me in the role persuaded me to observe a demonstration of a perpetual motion machine just outside Adelaide, an invention which, he insisted, would radically reduce the cost of living and manufacturing. I saw the demonstration but was not persuaded.

My Parliamentary colleague was deeply disappointed by my scepticism. He asked me why. I said, 'Well, it can't possibly be right because it is in breach of

the Second Law of Thermodynamics’. My colleague responded, ‘We should repeal it.’

Postscripts:

Australian science is “generally in good health”, but faces major challenges in the form of falling science participation and literacy in high schools, mostly stagnant enrolments at universities, and diminishing focus on the “enabling sciences” – mathematics, physics and chemistry, a comprehensive review has found.

PERTH

What am I doing here?

I was Australia’s longest serving Science Minister (1983-90), I think in part because nobody else wanted it and I have maintained an intense interest in science/research and its implications for public policy and politics generally. I have been generously rewarded by election as a Fellow of four learned Academies.

I have often been asked about how I came to be so heavily involved in Science policy and thinking about Australia’s future, so let me begin with some personal reflections.

From childhood, I was deeply involved, obsessed even, in the history and philosophy of science and read H G Wells, J B S Haldane and Julian Huxley avidly. I tried to apply much of what I had learned about science in my political career, such as it was.

Despite having been a Member in State and Commonwealth Parliaments for 26 years, and a Minister for seven, I left politics with a profound sense of frustration and unease.

I was seen as too individual and idiosyncratic by political colleagues, totally lacking in the killer instinct, while many in the academic community might have seen me as too political, even too populist.

My book *Sleepers, Wake!* was published in 1982, just 30 years ago, and its success, both here and internationally, mystified and irritated many of my colleagues. It went through 26 impressions and was translated into Chinese, Japanese, Korean, Swedish and Braille.

Thirty years on, my central thesis stands up pretty well. My major fault was in being too cautious about the speed and impact of change. But in trying to predict

the social, economic and personal impact of technological change, in 1982 I was Robinson Crusoe. I'll amend that in case you have not read Daniel Defoe: I'll say, 'I was on my own'.

Also, in politics, and in most other areas of life, nobody likes to be reminded: 'I told you so'.

In politics, my timing was appalling.

I kept raising issues long before their significance was recognised. That made me, not a prophet, but an isolated nerd.

I can claim to have put six or seven issues on the national agenda, but I started talking about them 10 -15 – 20 years before audiences, and my political colleagues, were ready to listen.

In politics, timing is (almost) everything and the best time to raise an issue is about ten minutes before its importance becomes blindingly obvious.

The issues were:

(i) Post-industrialism: the sharp decline in manufacturing as an employment sector due to the globalisation of markets and revolutionary changes in production techniques, leading to a sharp reduction in labour demand

(ii) Information Revolution – transition to digital society/ economy, with the development of low-cost personal computing, new ICT tools, and the development of the Internet, WWW and social networking.

(iii) Global Warming/ Climate Change. I gave my first major speech on this in 1984. In 1987 I spoke at a Conference in London, at the invitation of Mrs Thatcher, when Al Gore and I were the keynote speakers.

(iv) Antarctica. I argued for the need to preserve it for science, as a global climate laboratory.

(v) Biotechnology. I was fascinated by the implications of the DNA revolution and seized the opportunity to exchange ideas with some of the great figures in the genetic revolution, Crick, Watson, Perutz, Sanger.

(vi) 'The Third Age.' The social, economic and political implications of the steady increase in longevity, especially since the 1950s, in which there is a two

and a half year increase in life expectancy for each decade of elapsed time. I worked in Cambridge in 2000 and 2001 on these issues.

(vii) Heritage. This involves trying to understand our history, places, environment and social context, and I worked on this area at UNESCO in Paris, on and off, between 1991 and 1996.

I welcomed the challenge of talking to you about a Vision for Australia and the role of Science in policy development, both subjects in which I have long had a passionate interest. Asking me to talk about the importance of Science in policy development is a rather sensitive issue, because I have spent years, decades really, bashing my head against a brick wall trying to persuade colleagues to recognise the importance, even centrality, of Science policy.

I was also heavily involved in securing the abolition of capital punishment in Australia, reviving the Australian film industry and attempting to promote creativity in education.

It has been very difficult to get politicians interested in, let alone excited by, science and research.

It was a black spot with Gough Whitlam, endlessly curious about so many other subjects. I tried to induce him to read *Sleepers, Wake!* and failed. 'Far too erudite for me, Comrade!', he said. In his later years as Prime Minister, Bob Hawke took up an intense interest in Antarctica, Paul Keating began reading about the German contribution to chemistry in the 19th Century, and Kevin Rudd became absorbed in the history of the Royal Society.

One of my successors as Minister for Science persuaded me to observe a demonstration of a perpetual motion machine in his home state, an invention which would radically reduce the cost of living and manufacturing. I saw the demonstration but was not persuaded. My Parliamentary colleague was deeply disappointed by my scepticism. He asked me why. I said, 'Well, it can't possibly have any validity because it is in breach of the Second Law of Thermodynamics'. My colleague responded, 'We should repeal it.'

If I asked you to name the present Commonwealth Minister for Science, you might be struggling. It is actually Senator Chris Evans, Minister for Tertiary Education, Skills, Science and Research.

I am pleased to note that the Hon. John Day is listed in the Barnett Cabinet as Minister for Planning, Culture and the Arts, Science and Innovation.

Western Australia accounts for 46% of Australia's export income. This reinforces the stereotypical view of Australia as a nation whose wealth is entirely based on minerals.

If we close our eyes and lie back and think of Australia, we conjure up images of mountains of iron ore, and possibly happy snaps of Lang and Rose Hancock, huge sheep runs, dust clouds from herds of cattle, the bulldozing of hectares of forest on an almost Brazilian scale, energetic Japanese sailors dragnetting tuna and anything else in the area, algal blooms on our rivers and the growing problems of waste disposal.

But, despite being such an urbanised society, our international contribution to the technological revolution has been sub-optimal. Of the **BRW Rich 200** list, only one name owes his/her wealth to the development of science and technologically (except for where overseas products are licensed or adopted).

The high Australia dollar increases our alarming trade deficit in brain based goods – IT equipment, software, medical equipment, pharmaceuticals, chemicals, music, film, books.

Level of public understanding of science is disturbing.

MALDON

However, the quality of debate in public discourse is conducted at a debased level – and in such issues as climate change, population, taxation, refugees, mandatory detention and offshore processing, plain packaging of cigarettes, limitations on problem gambling, and access to water, both sides resort to cherry-picking of evidence, denigration of opponents, mere sloganeering, leading to infantilisation of democracy, treating citizens as if they were unable to grasp major issues.

The media is partly to blame, no doubt. Revolutionary changes in IT may be even more important, where we can communicate very rapidly, for example on Twitter, in ways that are shallow and non-reflective. Advocacy and analysis has largely dropped out of politics and been replaced by marketing and sloganeering. Politicians share the blame as well, as consenting adults.

Australia faces a potential breakdown in its political system. The 2010 election represented a low point in our political history, and both sides were at fault.

In 2010 the assertion that Australia's public debt was getting out of control was largely unchallenged – although figures confirmed we had the lowest

percentage in the OECD. Similarly, nobody pointed out that we run 46th in the number of refugees arriving unheralded on our shores.

Despite the exponential increases in public education and access to information in the past century, the quality of political debate appears to have become increasingly unsophisticated, appealing to the lowest common denominator of understanding’.

Although a non-scientist, I became fascinated with the history of science and how discoveries changed our understanding of the world. The current passionate and often irrational argument about climate change and the carbon tax illustrates the problem of balancing evidence and opinion. So do debates about vaccination, fluoridation, links between smoking and lung cancer, Holocaust denial, even the survival of Elvis.

Our democratic practice is based on the principle that every vote is of equal value. But is every opinion, on every subject, of equal value? The Welsh geneticist Steve Jones asks an important question: If there is a division of scientific opinion, with 999 on one side, and one on the other, how should the debate be handled? Should the one dissenter be given 500 opportunities to speak?

It is a serious issue.

Sovereignty of opinion v. Sovereignty of evidence.

Fundamental principle of democracy that all votes should be of equal value.

This raises a paradox: Are all opinions of equal value?

Don Watson’s point in *The Monthly* (August 2011) :

‘Most of what used to be theirs [i.e. the leaders] is shared between the host [on television] and his audience, for whom pretty well any opinion is as good as another. The politicians scramble for the residue’.

‘The people are sovereign, [Tony Abbott] says. To hell with the sovereignty of scientific facts, popular opinion will determine if the Earth is warming and what to do about it, just as it determined the answer to polio and the movement of the planets’.

Assumption that the future will just be an extension/ projection of the immediate past – if we are coal dependent now, we'll always be coal dependent, that consumption patterns will never change.

Individual benefit (me, my family, my area) v. General benefit (regional, national, international).

Short term (personal) v. Long term (generational)

Sustained attacks on the mainstream scientific arguments for the need to take action to mitigate anthropogenic climate change have been from groups which could more accurately be described as 'confusionists', than 'deniers' or even 'sceptics'. The opponents do not analyse the evidence and advance alternate hypotheses which are themselves testable: their main goal is to promote confusion. To confusionists, persuading citizens to conclude 'I just don't understand' is a very satisfactory outcome.

Creationism v. evolution, the age of the earth (Genesis v. geology), smoking as a cause of lung cancer, the safety of vaccination and fluoridation, whether HIV-AIDS is transmitted by virus, 'alternative medicine', controversies about the authorship of Shakespeare's plays, the Kennedy assassinations, the survival of Elvis, even the historical truth of the Holocaust, are all examples of recent controversies which promote a confusionist mind-set and earn some people more attention than they deserve.

Publications by climate change denialists/ sceptics mostly fall into two categories, knockabout polemic (mostly *ad hominem*) and objectors to a particular point of detail. The publications do not appear in refereed journals which suggests sharply alternative explanations – (i) that the material is not credible, testable or evidence-based, or, (ii) that there is a conspiracy by a scientific Mafia to suppress dissent. (Denialists are strongly drawn to the second alternative).

Scientists are not immune from vanity, and some dissenters have been encouraged by being told: 'The most important scientific factor in the climate change debate happens to be your area of expertise. Everyone else has it wrong. Only you are right'.

There has been a sustained attack from some quarters on scientific research and scientific method, even on rationality and the Enlightenment tradition. The illusion was created that scientists are corrupt, while lobbyists are pure. One of the false assertions is that scientists who take the mainstream position are

rewarded, while dissenters are punished (similar to Galileo and the Inquisition). Until 2007 in Australia and 2008 in the United States the contrary was true.

Scientists arguing for the mainstream view have been subject to strong attack by denialists who assert that they are quasi-religious zealots who are missionaries for a green religion. In reality, it was the denialist/ confusionist position to rely on faith, the conviction that there were a diversity of complex reasons for climate change but only one could be confidently rejected: the role of human activity.

Sir Gus Nossal often quotes me as saying that Australia must be the only country in the world where the word academic is treated as pejorative.

‘There’s a group of these so-called “experts” trying to tell you what to do with your life’. Specialists/ experts = elitists.

Cult of the celebrity journalist/talk-back host

Carbon tax.

Refugees.

Limits to gambling on poker machines.

Appeal to fear/ anger/ resentment/ ignorance.

Rejection of evidence base – reason/analysis/ examining.

Opinion and evidence are of equal value.

Every opinion is entitled to be taken as of equal value.

Kipling: ‘The village that voted the earth was flat’.

Iteration: finding a slogan or phrase (‘The world has been cooling since 1998’; ‘Toxic tax based on a lie’.) and repeating it endlessly.

Beyond accountability

Beyond evidence – no need to prove assertions. (Tony Abbott lives in a post-factual world).

Sir Ronald Fisher

Ronald Fisher was opposed to the UNESCO Statement of Race. He believed that evidence and everyday experience showed that human groups differ profoundly “in their innate capacity for intellectual and emotional development” and concluded that the “practical international problem is that of learning to share the resources of this planet amicably with persons of materially different nature,” and that “this problem is being obscured by entirely well-intentioned efforts to minimize the real differences that exist.” The revised 1951 statement titled "The Race Concept: Results of an Inquiry" was accompanied by Fisher's dissenting commentary.^[26]

He eventually received many awards for his work and was dubbed a Knight Bachelor by Queen Elizabeth II in 1952.

Fisher was opposed to the conclusions of Richard Doll and A.B. Hill that smoking caused lung cancer. He compared the correlations in their papers to a correlation between the import of apples and the rise of divorce in order to show that correlation does not imply causation.^[27]

To quote Yates and Mather again, "It has been suggested that the fact that Fisher was employed as consultant by the tobacco firms in this controversy casts doubt on the value of his arguments. This is to misjudge the man. He was not above accepting financial reward for his labours, but the reason for his interest was undoubtedly his dislike and mistrust of puritanical tendencies of all kinds; and perhaps also the personal solace he had always found in tobacco."

Science and the common-sense view of the world.

There is a major problem about explaining some of the major issues in science, and has been ever since science began.

Some fundamental scientific discoveries seem to be counterintuitive, challenging direct observation or our common-sense view of the world.

Common sense, and direct observation, tells us that the Earth is flat, that the Sun (like the Moon) rotates around the earth and that forces don't operate at a distance.

Then along come the Greek scientists and later Copernicus and Galileo who say, ‘Your common sense observation is wrong. Earth is a spheroid. The orbits of Sun and Moon are completely different, although they appear to be identical. Our use of the terms “sunrise” and “sunset” preserves this misunderstanding.’

Later still, electronics enabled us to do thousands of things remotely, using forces at a distance, setting alarms and opening garage doors, or receiving signals (radio, telephony, television,).

The most obvious disjunction between science and common sense is the question: ‘, Right now, are we at rest or in motion?’

Common sense and direct observation suggests that we are at rest.

But science says, ‘Wrong again. We are moving very rapidly. The earth is spinning on its axis at a rate of 1669 kph at the equator, and in Melbourne (38°S) about 1317 kph. We are also orbiting round the Sun even faster, at nearly 30 kps, or 107, 200 kph. There is a third motion, harder to measure, as the galaxy expands – and it’s speeding up, as our new Nobel Laureate, Brian Schmidt, postulates.

But, sitting here in Maldon, it is hard to grasp that we are in motion, kept in place by gravity.

Psychology resists it –and essentially we have to accept the repudiation of common sense on trust.

I would challenge anyone to reconcile common sense and quantum theory.

observation measurement prediction hypothesis: essence of scientific method

Confusionists emphasise prediction and hypothesis (and discount or ignore observation and measurement).

Common sense view of the world...

Circumference of the earth: 40, 075 km. Speed of rotation 1669 kph.

Orbit round the sun: 29.78 kps, 107, 200 kph.

Frank Luntz, an American wordsmith, is the author of the best seller *Words That Work: It's Not What You Say, It's What People Hear* (2007). He claims credit for persuading American politicians to stop talking about ‘global warming’ (ominous – a threat, needing action) and use the term ‘climate change’ (innocuous, it happens all the time, and needs no special action). If the new term is adopted, the campaign against effective action is half won. He also urged politicians to claim that the science was ‘not yet settled’ – there were significant professional disagreements. He is a consultant for Fox News, *The Australian* and the Republican Party.

Luntz' advice was adopted in Australia too.

Material from YPO speech...

It was assumed that the 'carbon pollution' formula would be easier to sell – 'pollution' being a familiar term with negative connotations. The Minister for Climate Change does not talk about climate change any more – he emphasises the benefit of 'clean energy' and 'reducing pollution', both good things in themselves, aiming at 'clean air' and 'environmental remediation' but with no necessary connection with climate change.

So, the central link with **science**, the strongest element in the argument, even allowing for its complexity, has been broken.

No scientist, to my knowledge, uses the term 'carbon pollution'. It would be difficult for the Government to make use of the excellent booklet by the Australian Academy of Science, *The Science of Climate Change*, because in its sixteen pages the phrase 'carbon pollution' never appears.

The illusion created is that **pollution** is the problem. This at best a half truth – more like a quarter truth.

Long term v. Short term – we are talking about decades ahead. We won't feel the impact – but children may and grandchildren almost certainly will – and so on...

CO² is not on the National Pollutant Inventory...

Sam Goldwyn – 'What's posterity ever done for me?'

Next month's electricity bill will be higher

Role of the radio shock-jocks...

Belief v. knowledge

More 'sceptics' here than in UK or Europe (See Shaun Carney)

Risk

'Pascal's wager'

Oddly, dissidents rarely refer to observed phenomena (disappearance of Arctic ice, thinning of Greenland's glaciers, fractures at the edge of the West Antarctic ice shelf, thawing of Siberian tundra, changes in bird migration, early flowering of plants) – and there is generally no analysis of *risk* either.

Pascal's wager and climate change.

- If we take action and disaster is averted, there will be massive avoidance of human suffering.
- If we take action and the climate change problem abates for other reasons little is lost and we benefit from a cleaner environment.
- If we fail to act and disaster results then massive suffering will have been aggravated by stupidity.
- If we do not take action and there is no disaster, the outcome will be due to luck alone, like an idiot winning the lottery.

Pascal - pp. 25-26 of APop