

The Wimbledon Philosophical Society  
29 January 2020

## **Science and Morality in an era of increasing climate concern**

By Chris Morrison

In 1856 a 15 year old child prophet called Nonquawuse is said to have heard voices telling the Xhosa tribe in south Africa that it must kill all the cattle, stop cultivating the fields and destroy all supplies of food. In addition, people should destroy all their farming implements and cooking pots to help, it was said, ward off the threat of British colonialists.

The junior soothsayer forecast that a magic day would dawn and everything necessary for life would arise from the earth. Of course it didn't, leaving just memories of what must have been spectacular bbqs. By the end of 1858 the Xhosa population had dropped from 105,000 to just 26,000 with up to 50,000 deaths from starvation. The tribal culture was destroyed and the colonialists picked up the pieces.

History gives us many similar examples where ancient cultures collapse under the weight of what seems a good story at the time.

Come amongst us today is a child prophet from the North who tells us that our house is on fire and we must remove the one efficient reliable fuel we have and harness our power from the wind and the sun. The child prophet says she has super-powers and claims to be able to see the invisible demon gas carbon dioxide. National treasure and revered voiceover artist Sir David Attenborough produces tv programmes featuring images of fire, storm and desolation and tells us that too many people live on the planet and we have only a few years to mend our ways.

State broadcaster Mr Jeremy Vine tweets that the recent meeting between the child prophet and the old Malthusian was one of the most significant radio event of the last decade.

My name is Chris Morrison and I am a professional inquiring journalist by rough trade and I think that the many hundreds of thousands of pounds Mr Vine receives from the BBC echo chamber is a tad on the generous side.

My talk tonight is in two related parts – Science and Morality in an era of increasing climate concern. Let me state at the outset that if we face a threat to our existence by altering the climate, I would be first in the queue to press for action. I want to live on a clean and sustainable planet. I love wild spaces - we must do all we can to preserve habitat and species. As a child of the make-do 1950s I find wasteful consumerism rather selfish and distasteful.

Let us look at the science. And the hypothesis is that humans burning fossil fuel - oil, gas and coal - has led to a sudden and dangerous increase in CO<sub>2</sub> in the atmosphere. CO<sub>2</sub> is a greenhouse gas and higher levels lead to more heat being trapped at the surface. The extra heat is leading to a rise in temperatures and will lead to a so-called tipping point where temperatures will rise uncontrollable whatever is done to stop CO<sub>2</sub> production.

This hypothesis is said to be supported by 97% of scientists. Indeed the science is said to be “settled”. The BBC has more or less banned any scientific discussion of the hypothesis while the Guardian published a letter in 2018 signed by many well know green activists stating that they would no longer “debate those who deny that human caused climate change is real”. Rather unnecessarily the letter went on to urge broadcasters to move on “as we are doing”.

Within this mainstream media hegemony there is now a strict anti-science, anti-Voltairean code in place: “I disapprove of what you say, but I defend to the death my right not to have to listen to you say it”.

Settled science is not science, it is dogma and ideology. So as a heretic I will now present the other sides of the scientific argument.

The world has been gently warming for about 200 years by around 1C. The start of the warming trend predates a more recent rise in atmospheric CO<sub>2</sub>. Numerous scientists argue this has many natural causes with higher temperatures for instance leading to warmer waters releasing gas from an enormous ocean store. These natural causes that have always driven climate change include the activity of the sun, the orbit of the Earth, and on Earth the effect of tectonics and the oceans.

In the geological past, CO<sub>2</sub> levels have been up to 20 times higher without any evidence of a climate fireball. The “settled” crowd say this was OK because the sun was colder which as a “dog ate my homework” excuse will just have to do. In the recent past, the medieval and Roman warming periods saw similar gentle beneficial heating to that experienced today over a similar time scale. Six thousand years ago the warming was even greater.

CO<sub>2</sub> is plant food – it is neither a pollutant or a toxin. Without CO<sub>2</sub> all life on Earth would die. In the past higher levels of CO<sub>2</sub> have led to more abundant vegetation and thriving life forms. The recent discovery of a dinosaur the size of a bus living 100 million years ago at a time when CO<sub>2</sub> levels were ten times higher than present suggests good growing conditions all round. Colder downturns have tended to lead to the extinction of plant and animal life.

In its past the Earth has been as warm as 70F and as cold as 48F. In that past the Earth has often been ice free. At the moment, as we coming out of an ice age, it is around 57F. Ice cores going back about

a million and a half years suggest that CO<sub>2</sub> increases lag temperature rises. In our current period of gentle warming, experienced many times in the past, CO<sub>2</sub> levels have risen from around 280 parts per million to just over 400 – 0.04% of all gases in the atmosphere. The rise started long before industrialisation took off at the end of the second world war.

Both Professor William Happer, the emeritus professor of physics at Princeton University and Dr Patrick Moore, the founder of Greenpeace, argue that we need more CO<sub>2</sub> in the atmosphere since we are emerging from a period of denudation where plants on both land and sea struggled to survive on Earth. Over the last 30 years satellites show that the world has added about 14% more vegetation providing some relief from the famines widespread in the 1980s. This is ignored as a rather inconvenient fact. Imagine the “we’re all doomed” outcry if the reverse was true.

How much CO<sub>2</sub> are we humans pumping into the atmosphere from burning ancient plant and animal matter? This might surprise you - just 3%. Of all the CO<sub>2</sub> entering the atmosphere at this moment, humans contribute just 3%. The rest arises from the natural carbon cycle. Indeed burning fossil fuel can be said to be part of the natural carbon cycle with, in geological terms, a short delay.

If we remove that 3% - what about the other 97%. Is that special non greenhouse CO<sub>2</sub>? And what temperature would we like the Earth to be at 56, 57, 58F What is the correct level of CO<sub>2</sub> – 340, 360, 4,000 ppms? Why are we the first generation in history that largely regards astrology as a joke but thinks we can control the climate and the weather? Can we go one better than King Canute?

What is the evidence that human made CO<sub>2</sub> is causing the planet to warm? Not very much, according to Greenpeace Old Boy Dr Moore who states that there “is no scientific proof that human emissions cause the minor warming of the last 100 years”. This view is also

shared by the only scientist to have walked on the moon Harrison Schmitt who notes that there is no evidence that humans cause climate change. The atmosphere is a chaotic place subject to constant natural variation. CO2 certainly traps heat but so does water vapour, a much larger atmospheric component – 4% compared with 0.04%. Other greenhouse gases include ozone, a gas that in a former scare we were told must increase for our survival.

Scientists do not actually know what effect higher levels of CO2 will have, if any. On any basic scientific cause and effect the jury is out on whether humans are contributing much to a climate that has changed since the beginning of time on Earth. Far from being settled science, the hypothesis is interesting but unproven.

Since there is little causal evidence that we are heading for a climate fireball, researchers instead rely on climate computer models. Computer models try to measure the unmeasurable chaos that is the atmosphere. Often inaccurate ground temperatures, full of urban heat distortions, are used and large suppositions made. There are about 100 climate models and over 30 years none have been accurate. And yet predictions of up to 6C future warming from these same ineffective models are routinely used to justify removing the one cheap and efficient fuel we have.

As they don't say in the climate computer modelling business:

Garbage in, Gospel out.

But if you dare to question the fanciful forecasts you are called a denier, as if questioning a mere forecast is the same as denying the known historical fact of the Jewish holocaust.

The mainstream media seems too busy fawning on the loopy views of Extinction Rebellion that billions will die to find space for the news

that a group of climate scientists told the recent UN climate summit in New York that there was no “climate emergency”. The group warned that the climate models on which all international policy is based are “unfit for purpose” and are not “remotely plausible as policy tools”.

Last summer 70 Italian scientists told us that “natural variability explains a substantial part of global warming observed since 1850”. In their view, human responsibility for climate change is therefore “unjustifiably exaggerated and catastrophic predictions are not realistic”. In their considered view “it is scientifically unrealistic to attribute to humans the responsibility for warming observed from the past century to today”.

So who are these appalling fellows, hundreds of the blighters all contradicting the massed ranks of the BBC, Guardian, Stanley Johnson as well Sir David and St Greta. Well one thing leaps out – there seem to be an awful lot of actual scientists in their ranks, rather than the self-identifying scientists wheeled out on a regular basis by the BBC to scare young and old with the latest bogus climate scare du jour.

People actually studying science subjects like physics and chemistry – people such as Antonio Zichichi, emeritus professor of physics, along with Renato Angelo Ricci, also a physics emeritus professor and a former president of the Italian Society of Physics. People who warn us not to sign up to policies of uncritical reductions of CO<sub>2</sub> with “the illusory pretence of governing the climate”.

It is tempting to note that the 97% (recently promoted to 99%) consensus behind the scientific hypothesis of human-caused global warming is breaking down, but this assumes it ever existed in the first place. The original 97% claim is widely credited to John Cook from the “Skeptical Science” activist blog but has long been ridiculed. Even the Guardian in 2014, at a time when some climate science

debate was allowed, published a piece by economics professor Richard Tol in which he noted that the consensus “does not stand up”.

Anyway consensus is irrelevant in science. All that matters is the truth. Science operates by testing an hypothesis if necessary to destruction. In an era of “settled” science that mechanism has broken down in many parts of the science community and is reflected in the mainstream media.

Don’t take my word for it. The Climategate scandal centred around the University of East Anglia a decade ago showed clear evidence of supressing contrary opinions and falsifying data destined for the UN’s IPCC reports, notably the infamous hockey stick graph abolishing the mediaeval warming period.

In 2010 Dr Hal Lewis, emeritis professor of physics at the University of California, resigned from the Association of Physical Science in the US after 67 years membership.

In his resignation letter he noted:

“it is of course the global warming scam with the literally trillions of dollars driving it, that has corrupted so many scientists and has carried APS before it like a rogue wave .. It is the greatest and most successful pseudoscientific fraud I have seen in my long life as a physicist. Anyone that has the faintest doubt that this is so should force themselves to read the Climategate documents which lay it bare”.

These are not my words but the under-reported and largely ignored words of genuine scientists. Instead of a reasoned debate about climate science we are force fed a diet of political green ideology masquerading as science fact. Few journalists work causes more

hilarity than Messrs McGrath and Harrabin of the BBC. At a time when Matt McGrath was being given a 100,000 euro award by a green activist group, he was uncritically reporting that 11,000 scientists were predicting “untold suffering” from the forthcoming climate emergency. Not that this piece lasted long on the BBC’s anti-science page when it was learnt that the noted climate authority Professor Mickey Mouse had signed the activists’ petition along with Hogwarts headmaster Albus Dumbledore and Professor Araminta Aardvaerk from the University of Neasden.

Now here is a thing. The 2010s in the UK were colder than the 2000s and last year was only the 11th warmest since 2002, according to, of course, under-reported recent figures from the UK Met Office. In the US, last year was only the 33<sup>rd</sup> warmest since 1895, beaten by the phew what a scorcher year of 1900. How wise of the ecstatic green ravers to have retired “global warming” replacing it with last year’s exciting “climate emergency” and now high dosing with “CLIMATE BREAKDOWN”.

Temperature has rarely moved in a straight line, unlike the recent increases in CO<sub>2</sub>. In our lifetime we have seen falls in the temperature record from 1945 to 1976, a rise until around 1998 then a flatline pause until about 2014. After a strong natural El Niño the temperature might be flatlining again. Last year the average temperature of the UK was 9.42C, down from nearly 10C as recently as 2014. The figure was the third successive annual drop recorded. Surface temperature measurements can be dubious but similar falls in temperature have been recorded in the lower atmosphere by more accurate satellite measurements. These also show annual falls since 2016.

Since temperatures can’t always be trusted to stick to the fireball script, the public relations effort has turned to so called “records” and “extreme” weather events. Naturally the BBC led the way

recently parroting the Met Office's suggestion that a series of high temperature records were broken in 2019 concluding a "record-breaking decade".

Promoting long term harmful changes in climate by cherry picking so called individual records is about as unscientific as you can get. Last year's record high of 38.7C was measured in the middle of Cambridge, a city that has grown by 40,000 people over the last 40 years. Just outside the city and away from the urban heat effect, a similar measurement produced a temperature of only 38.2C.

The planet is a large place. At any one time bits of it are hotter, colder, dryer and wetter than average. Countless "100-year" records are available to be selected for countless purposes. In trying to assess long term climate trends they are more or less useless - mere cherries on the green political cake.

As I note, the global temperature has risen by about 1C over the last 200 years, a period of benign, rather helpful warming. But we are now faced with the dread 1.5C warming forecasts - the holy grail of climate hysteria - the - cue scary music - "tipping point" when all of Greta and David's nightmare fantasies come true. But those with a slightly longer memory recall Armageddon started at 2C, a figure that has no sound scientific basis whatsoever.

The figure was first promoted about ten years ago by Hans Joachim Schellnhuber, the director of the Potsdam Institute for Climate Impact Research. It was quickly taken up by the IPCC and at the Copenhagen climate summit German environment minister Norbert Röttgen claimed that if it was exceeded "life on our planet, as we know it today, would no longer be possible".

But of course the limit was all scientific nonsense - clearly a political goal. And who subsequently said that - why Mr Schellnhuber himself who added: "the world will not come to an end right away in the

event of stronger warming, nor are we definitely saved if warming is not as significant. The reality, of course is much more complicated”.

Presumably Mr Schellnhuber was of the same mind when the IPCC further whipped up climate hysteria and suddenly reduced the figure in 2018 to 1.5C.

It is rather odd to worry about a degree or two of warming. Humans have only been around at a time when planet is in a coldish period. In geological terms we are still in an ice age - that is why there is still ice at the Poles. Glaciers have often been retreating since we walked the Earth. Ancient homo sapiens probably lamented that the Rhone valley no longer had the best skiing, but at least the food and wine had improved.

In fact as ice melts, compressed land rises often mitigating against higher sea levels. The American Great Lakes still show rises and falls in water level in different areas. Green activists out to make a political point need to choose their investigation spots carefully. But land rises and falls for numerous reasons - many of the ancient English Channel ports are under water while the reputed later port home of the Virgin Mary, Ephesus, is now situated miles inland.

Let us consider another stat. According to the Office of Budget Responsibility the cost of subsidising renewables to produce electricity, mostly wind, is £12bn a year. That is £460 for every home in the country. On average wind provides 17% of the power to the grid while electricity accounts for about 30% of total UK energy needs. Back of an envelope calculations means a subsidy of about £140bn if we move to 100% wind powered electricity.

Renewables are both expensive and unreliable. Stand-by facilities are required and these of course are powered, in the UK, mostly by gas. £140bn is enough to build HS2 with money left over for a third runway at Heathrow and Crossrail 2 – every year.

Or look at it another way. Whose hospital and school is not going to be built, whose state benefit is going to be cut, whose streets are going to be under-policed. If we can't make the choices we need to reduce the subsidy and let energy cost rocket, as they are starting to do in the UK and much of Europe. Is it going to wash? – I don't think so. A year ago President Macron came over all green and put tuppence on a litre of fuel. The rocks are still flying through French windows.

Wind power is a particular ecological and financial disaster area. Wind farms kill countless birds, particularly birds that rely on wind current such as eagles, gannets and albatrosses. Huge amounts of power are required to build them with electro magnets containing vast quantities of rare earth metals mostly supplied by our friends in China.

Storing their energy at a time of surplus is hopelessly uneconomic. Batteries are a 19<sup>th</sup> century invention and are simply unable in their current form to store the vast amounts of power required to run a national grid.

Last week in the UK, high pressure caused wind to drop. Over four days there was a shortage from wind of 500 gigawatt hours. To store this amount of power would require 5,000 Tesla battery farms of the type built in south Australia at a cost of £50m each. That's £250bn to pick up the slack from just four days of less wind – a figure that's almost equal to our entire social security budget.

These are figures that you will not be shown if you are one of the unfortunate 110 delegates kettled at the so-called Citizens' Climate Assembly being fed days of science-free, show me the money, green agitprop.

You will be told that we need to spend billions to solve battery storage. Well good luck on that one since all the evidence suggests that we will need to alter the basic laws of physics to find a realistic solution. You will be told we must use vast quantities of your money to find an way to separate hydrogen from its chemical compounds that doesn't require using large amount of power – and of course very careful storage!

In the meantime a lot of people, corporations and grant hungry academics are going to live very well indeed soaking up all that free state money. Billions if not trillions are being spent to alter the life we lead, what we eat, where we travel and ultimately, it is hoped, how many children we can have in the future.

Or has the late Canadian minister of the environment Christine Stewart said: “No matter if the science of global warming is all phony .. climate change provides the greatest opportunity to bring about justice and equality in the world”.

Already the warning signs of green disaster are starting to appear. In 2018 the long-established Institution of Engineers and Shipbuilders in Scotland warned that Scottish and UK government green energy policy was likely to lead to severe electricity blackouts. Such events, it warned, “lead to death, severe societal and industrial disruption, civil disturbance and loss of production”.

Apart from a small report in the Glasgow Herald the warnings were unreported. On the other hand, in 2014 the Guardian ran a story reporting the then Scottish First Minister Alex Salmond's view that Scotland's green energy resources can power much of Europe. With its natural energy resources the envy of Europe, Scotland “could be the Saudi Arabia of renewables”. At the time Mr Salmond got rather carried away. “Our energy resources can power much of Europe; our energy innovation can power the world. It's a time for Scotland –

working with nations and companies from across the planet – to become the intellectual powerhouse of green energy”.

If only there was a way to harness Mr Salmond’s windy rhetoric, Scotland could light up the globe.

The green revolution opens issues of morality that in my personal view are being largely ignored. Under cover of an unproven scientific hypothesis which is not open to debate, the world is to rid itself of a fuel that has taken billions out of poverty and provided a standard of living for many in the developed world that could only have been dreamed of by about 99% of the people who have ever lived on Earth.

Across the globe, levels of poverty have fallen in recent times to record low levels. None of this could not have been achieved without reliable cheap energy. But in the North of England Friends of the Earth activists with average annual salaries of £40,000 measure unmeasurable earthquakes to stop the fracking of natural gas in areas of the country where the average annual wage is often around £18,000. In the last election Rebecca Long-Bailey promised them windmills instead.

Like compulsory fees for state broadcasters, green taxes on energy bills are highly regressive. Already energy, as with the rest of Europe, is loaded with green charges – charges that mean nothing to virtue signalling, traffic stopping, rich celebrities but hammer the incomes of households reliant on minimum wage employment.

In the developing world the IMF and World Bank will no longer grant loans or support for fossil fuel power stations. All the money is given to renewable energy projects. In these countries a life of subsistence leads to huge ecological damage as trees are chopped down for fuel and bush animals are slaughtered for food. Many die prematurely from poor hygiene, dirty water and preventable diseases. Who are

we to deny these people access to the same fuel that lifted us out of similar conditions less than a couple of hundred years ago?

Maybe we should, but I think we ought to have very good reasons to do so.

***Questions, comments and responses following a talk by Chris Morrison entitled 'Science and Morality in an Era of Increasing Climate Concern'***

Q. Chris suggested that climate science reporting is corrupted; why is that so and what about other areas of scientific research?

A. Science up until the second world war was largely funded individually; the state became involved with the nuclear programme and the needs of the war. The state is now the biggest driver of scientific research which is not necessarily a good thing because scientists have to respond to what the government wants in order to achieve funding. Peter Ridd, a climate scientist with 40 years experience was fired from his university post recently because he questioned the causes of coral bleaching. Corals live happily between 24F and 32F; what they don't like is sudden changes in temperatures caused for example by a naturally occurring *El Nino* effect. Dr Susan Crockford was not reappointed to her post because she pointed out that polar bears were actually increasing in number. Equally there are no more scare stories about the penguin population after a huge new colony was discovered in Antarctica.

Q. Do we need to worry about the rise in sea levels and the rise and fall of ice in the Arctic?

A. In the last five years the Thames Barrier has only risen nine times – a record going back to the 1980s. Sea levels have been rising steadily for the last 200 years at a rate of about 2-3mm a year. The sheer weight of glacial ice compresses land and when the ice melts, the land rises up. The Great Lakes in America are just such an example.

Q. Bangladesh?

A. People have always lived in extreme geographical areas. River deltas are liable to natural flooding.

Q. Do you have a figure for subsidies for fossil fuels?

A. I don't consider fossil fuels to be subsidised when 70% of each litre of fuel goes in tax to the state.

Q. Last year subsidies to the carbonaceous fuel industry worldwide were £25m (IEFA). The subsidy is mainly for exploration research.

A. Fossil fuels are very cheap and very reliable and don't require a subsidy.

Q. The unit cost of solar power is now less than that of fossil fuel.

A. Sun and wind might be free and renewable but both are unreliable and unpredictable and have to be supported by conventional supplies. The huge cost of the storage batteries also has

to be taken into account. The solar panels themselves are ecologically unfriendly. Hydrogen fuel units also need to be powered by other sources of energy.

Q. Subsidies are there to help the new renewable technologies grow and to become economically viable. They are not revenue generating in the early stages of development.

Q. What happens when we run out of fossil fuels?

A. There was a scare about 20 years ago that fossil fuels were about to run out. But we now have very cheap natural fracked gas – the supply of which is estimated to run maybe 1000 years into the future – this natural fuel source is also very much cleaner than coal and produces only half the CO<sub>2</sub> of coal.

Q. Nigel Lawson was often interviewed on the BBC about climate issues; 99% of scientists, it was claimed, disagreed with his view that the rise in CO<sub>2</sub> levels was not manmade. If so many scientists are saying the same thing, maybe we do need to listen to them.

A. 99% of John Cook's team of 3,000 or so scientific researchers may well have agreed that there was a *possibility* that the rise in CO<sub>2</sub> was attributable to human behaviour but the degree of possibility was never explained. On a possibility scale of 1 to 10, the vast majority of those scientists were in the 4 - 6 range and cited many variables in global conditions for their opinions to hold true. There was never a consensus of opinion. It's also important to remember that only 3% of CO<sub>2</sub> in the atmosphere is caused by fossil fuels.

Q. Comparing the BBC and Fox News, it's impossible to believe that the BBC would be so motivated and biased in its views and reporting on climate change as Chris suggested.

A. The BBC's standards are dropping alarmingly. It takes a Davos view of the world. And many journalists simply sub-edit the press release – that's bad journalism whether they're writing for the BBC or Fox news. It's a journalist's job to enquire and to keep asking questions. Unfortunately anyone questioning the 'settled science' is not allowed anywhere near the studio – whereas Extinction Rebellion is given headline news space.

Q. Coral bleaching and non-regeneration: personal diving experience all over the Caribbean since 1959 showed the beginning of bleaching around 1965 and its continuation to date without any regeneration. Corals cannot regenerate in warmer water.

A. Corals are happy in and can adapt to a water temperature range of 24F -32F. What they don't like is a sudden change in temperature and an El Nino can hike the temperature one or two degrees within a year. Corals are made of calcium and carbon so they actually like CO<sub>2</sub>.

Q. Acidification of the oceans is taking out the calcium.

A. The oceans are becoming slightly less alkaline – that's not the same as saying they're acidic. CO<sub>2</sub> is plant food. The Dolomites were created in an age of high CO<sub>2</sub> levels.

Q. James Cook's research has shown significant acidification in the Barrier Reef: only a tiny amount of change in a complex system can have a dramatic effect.

A. That's a supposition and it's unproven. Pollution is real cause.

Q. Do you accept that the vast majority of climate scientists believe that the climate is changing and the cause is manmade? And that you might be wrong?

We can do nothing and face disaster in 30 years' time; or isn't it incumbent on us to take out an insurance policy against catastrophe.

A. Climate has always changed and is changing now but scientists are not always as convinced that there's a climate emergency as they appear to be – even in IPCC reports. Unfortunately scientists seeking research funding will not get a penny unless they go along with the consensus. As a result we are faced with spending trillions of pounds removing the one efficient fuel source that we have. The science is not settled – we have to put our heads above the parapet and talk about the science.

### ***Leslie Dighton responded to the and led the philosophical conversation***

I did not find Chris's arguments convincing. I am a sceptic by formation. I sat at the feet of Michael Oakeshott and Karl Popper and learned that it was wrong to think about definitive futures and science. That it was right to consider everything as uncertain and worthy of debate. They both came out of that moral outrage in Germany and developed philosophies which stood against the concentration of power that allowed that outrage to take place. Absorbing their thinking and writings, I became all about decentralisation, individualisation, no strong central government, no direct visions. That is still my general philosophical stance today on power and how it should be organised.

Over the last 20 years I have been closely associated with the science of climate change from a business and an academic perspective. Would people like Martin Reiss, David King, men of distinction, humility and objectivity subscribe to a view that they didn't believe in? So the evidence that Chris produced was not a general exposition, it was a selective exposition in the direction of deniers and sceptics and was critical of the BBC's impartiality. I believe in the precautionary principle in life. If a great big risk is looking at you – do something about it.

I also believe that government has to be much more proactive in the climate issue that we have. The ozone issue was able to be addressed by scientists because it was a specific problem and there was a specific cause: climate change isn't like that; it is not a single specific thing for which you can produce solutions and answers to specific questions.

The money issue: 95% would back 'business as usual' and only 5% would be allocated to significant climate adaptation.

Exhaustion of fossil fuels is an interesting issue but it's not germane to the core of the issue. The issue is physical threat to lives and the pattern of civilization that we have and in some time frame that we don't know. But it may be sufficiently urgent to need to address it now. Exploration for fossil fuels commands 90% of allocated funds which explains why this source of energy is still abundant. Only 10% of fossil fuel providing company funds is devoted to new technologies and new infrastructures. We have a duty to act upon the carbon emissions that we are responsible for – however small (3%).

We decided at an earlier meeting that the philosophical conversation would recognise that there is only uncertainty and that we need to respect differences in views. We also said that there was no connection between knowledge and morality. Conversation is the only thing that moves people forward by agreement.

The critical question for tonight's conversation is: is there a point at which the climate condition in which we find ourselves potentially moves us out of our democratic comfort into a different political necessity?

What might that future condition be?

There is a climate problem – the Al Gore film, 20 years ago, was proof enough that PPMs (*parts per million of CO<sub>2</sub>*) have gone up from 280 to 409.3 and increasing at 3 per annum. There is still no causal proof between this increase and climate conditions today.

Every year we lift an Everest-sized mountain of CO<sub>2</sub> into the atmosphere. We do this individually with our cars and exhaust pipes and our industrial activity. It's not just CO<sub>2</sub>, it's methane, 257% last year; nitrous oxide 127%. These are not just pollutants, they are inimical to health.

So there is this apparent climate problem and it has some presenting features. The Antarctic, Australia, drought in Sudan, flooding in Bangladesh – these are all climate events which are happening *there*, not here. It's impossible to think that sitting in this environment, having had a day of blue sky and great wonder that these kinds of crises are going on. Humankind does not have the capacity to anticipate, reach forward and engage in broad, decisive commitment to action until it's too late.

Norman Strauss said that what counts is mind ways, not high ways – we need to clear our mind of bias, preference, self-interest, instinct. In order to think on climate change, we need to clear our minds.

The questions we might want to address as a group are:

Is catastrophe already baked into the earth? Even if we stop producing one part per million of CO<sub>2</sub> now – the time lag of what is already ingested in the oceans and the earth's temperatures would carry on raising the earth's temperature to a degree that is potentially threatening to any form of civilization as we know it.

Is a radical transformation necessary? There are three great drivers of climate: population; appetite for growth and consumption; our values as a social structure which currently are big – big hospitals, big schools creating mobility issues and undesirable economic consequences.

What is it that can motivate that radical change when we have this instinct of self-interest to ignore the situation? How do we link any sense of moral duty beyond ourselves into the community, into the nation, into different generational time. Fear can drive that radical change. Fear and power together are convincing – you can see both in Wuhan today. We haven't yet got the fear in climate change because there are alternative views about the degree of urgency and severity. Nor have we got the power in a democratic system which

relies on the will and sense of electors who are, by and large, consumers. Democracies are not particularly good at statecraft – thinking about and acting on the big, important issues.

In the event that really serious, catastrophic climate events of the worst kind begin to happen we will see resource wars (primarily for water); epidemics; anarchy in society; states will fail and critically massive migration. Threats to security lead to military intervention. The military should be included in conversations prior to the need for such intervention to prevent a pre-emptive military agenda. Compulsory rationing, forced closures of the polluting points, prohibitions on travel, three day weeks for electricity – all of which have been tested before in wartime – demonstrate the degree of control that can be put in place.

Nobody wants this scenario. We want to take the precautionary route such as lifeboat drills in a way that creates education, understanding and commitment. Western democracies have moved back from Margaret Thatcher's principal that 'we are strong to do those things that government must do and only government can do'. Radical reform of governments (as advised by Norman Strauss) is the only possible way in which we can move forward. We need an upsurge of individual pressure, we need individuals to start behaving in ways that are conscious of the main problem and we need governments with the authority to begin to assume responsibility.

### ***The philosophical conversation***

Why is there this huge chasm between the believers and the doubters?

The Green Party has just one MP and that's probably because the Green Party has become extremely factional and socialist. The climate issue requires a broader church.

The reason for the difference of view at the scientific level is that there is an underpinning of ideological difference: he's green therefore he's a socialist.

The greens drifting to the left is all to do with money – socialism means spending people's money until it runs out and to fix the climate problems will take incalculable amounts of money. People on the right know that the money simply isn't there.

So the imperative is the economic one and not the civilization and moral one.

Energy efficiency is going to be a huge business and is set to save the world economy.

People who do not have the means to argue with energy providers (to question bills for example) may be paying far too much and the energy companies are profiting from them.

The first past the post voting system in the UK inhibits the success of the Green Party.

It's not just the voting system – the Green Party has the ability to appeal to a much wider public since climate issues concern everyone. But it's a hair shirt party and is unappealing even if you agree with them. Humans have the potential of producing sources of energy which will overcome climate-made difficulties. Nuclear power has fantastic potential especially if we can make it safer.

The cost of nuclear far outweighs the cost of other emerging technologies. Hydrogen is a completely renewable, clean energy cycle.

70% of a population (of coached chief executives) have very basic ways of thinking about reality and they come up with simple solutions to complex problems. About 15 – 20% are in 'crisis' – realising their existing way of thinking doesn't work any more. 10 – 15% have

moved to a stage where they can handle complexity. A democracy which gives simple answers to complex problems is disastrous to our ability to adapt.

We need a crisis before a radical change happen.

Fuel efficiency and cheap fuel is available now – the Three Gorges Dam project in China proves it but this is only achievable in a state where the government has the power to displace 1.3m people, flooding homes, farms and businesses. How do you work out the balance between state coercion and the provision of cheap energy for all.

It is the government that decides that the moral duty to provide is greater than the disruption and discomfort caused. Climate change is in such a condition – we do not have political authority or systems that allow us make that choice.

We are not going to have hydro in this country: when the Greens get involved projects are stopped because a couple of badgers are upset.

We don't have political and transparent discourse about these issues.

The Australian bush fires have nothing to do with climate change but everything to do with mass urban development particularly away from coastal areas. There have also been two hundred arrests for arson.

The drought is the worst in the history of Australia and of South Africa. To say that the crisis in Australia is nothing to do with climate change is simplistic and irrational thinking.

The incidence of fires and degree of dryness in these areas has been steadily increasing.

London smog caused open fires in London to be banned. But we had to reach crisis point first.

At what point does falsifiability become germane to the conversations we're having? Our society now upholds that opinions are valid and nothing can be proven.

We do not have the machinery, the political and moral discourse that we need. We have a binary system of politics with no consensus to move forward towards truth. The democratic process is not likely to be able to cope with catastrophic events brought about by that fear of the consequence of climate change.

It's hard to ignore the level of devastation in Australia and say this really isn't a problem. Is there a point at which you say this is undeniable and falsifiability doesn't apply?

There is a new democratic voice in Australia with the outcry against the Prime Minister who has so far resolutely said there is no problem and is on the brink of commissioning a new coal plant. It will be very interesting to see what the binary political system in Australia comes up with for these opposing viewpoints.

To conclude we need to look at three determinants:

- Three thousand maximum polluting plants (glass, chemical factories) around the world which need to be forensically examined for their continued sustainability and efficiency.
- Three billion people already on the planet who, without female empowerment, western subsidies for birth control, medical assistance, education that takes away the need to have the seventh, eighth, ninth child will produce another three billion.
- and Three trillion needs to be aggressively invested in green energy and not just here in the West. We need to take that difficult moral decision to invest the money where the problem is – in China, in India (and in the States as consumer) but without denying the kind of progress we have already enjoyed in the West.