

THE POLITICS OF GLOBAL WARMING (2): TWO OBSTACLES TO CIRCUMVENT

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ABSTRACT

Purpose – The purpose of this chapter is twofold. First, to show how the financial power of the fossil fuel industries and the prevalence of religious ideology in Congress are the two major obstacles preventing the U.S. government from taking action to slow down global warming. Then to evaluate various approaches to ‘satisfying our energy needs’, by showing a crucial dynamic behind our insatiable drive to consume energy, and to propose some ways of circumventing the current obstacles.

Methodology/approach – The approach is through a comprehensive study of the relevant evidence and academic literature, interwoven with philosophical reflections on their significance.

Findings – The findings are as follows: a major root of the current problem is the dysfunctional political system in the United States, which is corrupted by vast infusions of money from the fossil fuel industries and the dogmatic religious beliefs of Republicans in key positions on Congressional committees.

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Social implications – *The implications are several. The proposed technological solutions to the ‘energy problem’ – nuclear power, carbon sequestration, fracking for natural gas and geo-engineering – only address the symptoms and ignore the dynamic that underlies them, exemplified in the story of Prometheus. If we continue to be driven by the Promethean spirit, we risk being subject to excruciating punishment as a result. The solution to our problems is a transition to clean and renewable sources of energy, accompanied by the kind of reduction in material desires that evidently makes for lives that are more fulfilled.*

Originality/value – *The value of the philosophical perspective on this topic is that it highlights questions of value that otherwise remain inexplicit.*

Keywords: Fossil fuel industry; politics; Prometheus; religious right; renewable energy.

TWO IMMEDIATE OBSTACLES

Politics in the United States

The most powerful factor in all of this is the way profits direct politics. Plato, in his *Republic*, sensibly disconnected the ruling of the polis, reign over the political, from monetary gain and material profit. In order to show what is the best kind of ruler, Plato has Socrates introduce the analogy of the doctor, whose concern is the advantage of the patient rather than his own. To this extent, one must distinguish doctors, as practitioners of an indispensable art, from ‘businessmen’ or ‘money-makers’. In the case of the medical practitioner, it benefits society to disconnect personal gain from professional activity. If the health service pays me a fixed salary for being a surgeon, regardless of how many procedures I perform, I can decide whether treatment is called for purely out of consideration for the patient. Whether I operate or not, prescribe medicine or not, or do any kind of treatment, has no effect on my earnings. The same must hold for the ideal ruler:

There isn’t ever anyone who [responsibly] holds any position of ruler ... who considers or commands his own advantage rather than that of what is ruled and of which he himself is the craftsman. (Book 1, 341c–342e)

The best rulers, according to Socrates, are those – strangely – who are reluctant to rule: after all, there’s nothing in it for them personally, since

genuine ruling has to be directed by the advantage of those who are ruled. The rulers are of a type that is not interested in either the profit or the honour that might come from ruling: they consent to rule only because there is no one better or more qualified, and they are reluctant to be ruled by those less capable than themselves. Socrates requires that the rulers possess no private property except for the necessities, which will be provided as a 'salary' by other citizens, in moderate amounts that result in neither surplus nor lack.¹ This arrangement ensures that the prospect of personal gain cannot possibly enter into the decisions the rulers make concerning what is best for the community as a whole.

When we turn from this ideal republic to the federal republic of the United States of America, we find a situation that could hardly be farther from what Plato envisaged. There is no place like the United States for profits directing politics: following decades of efforts by honourable politicians to reduce the impact of money on politics through various kinds of campaign reform, the shameful decision of the Supreme Court in the *Citizens United* case in 2010 basically affirmed the rights of the rich to buy the politicians and the policies they want. The 'Super PACs' and other monstrosities ushered in by the Supreme Court's decision are turning the country into a full-on plutocracy, where the 1% can rule the other 99 as they see fit. A report released by the Global Commission on Elections, Democracy and Security (a distinguished international body headed by Kofi Annan) is severely critical of this situation, observing that a series of court decisions culminating in *Citizens United* has 'undermined political equality, weakened transparency of the electoral process and shaken citizen confidence in America's political institutions and elections' ([Global Commission on Elections, Democracy & Security, 2012](#)).

The main obstacle to international agreements to tackle global warming is the US government, which refuses to take appropriate action – thereby providing nations like China and India with a justifiable pretext for likewise refraining from action.² The major factor here is the fossil fuel industry, which has a huge vested interest in continuing business as usual, and increasingly has the political power to ensure that it can. Governments in the United Kingdom and the United States have been giving generous subsidies to those industries for decades, which are in turn using their vast profits to maintain the political clout to keep those subsidies coming. According to the International Energy Agency (IEA), US taxpayers in 2008 contributed to subsidies for fossil fuel concerns – some of the most lucrative businesses on the planet – to the tune of a staggering \$557 billion.³

All this in spite of the fact that in 2009 the leaders of the G20 nations committed themselves to phasing out subsidies that ‘encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change’. Analyses by the IEA and the OECD (Organisation for Economic Co-operation and Development) predict that removing inefficient subsidies, in conjunction with programmes that assist poor households and displaced energy workers, ‘would raise national revenues and reduce greenhouse-gas emissions’ (IEA and OECD, 2011). Nevertheless, in March 2012, the British government awarded the oil industry an additional £3 billion in tax breaks in order to open up an area to the west of the Shetland Islands for drilling new wells (Macalister, 2012). Since British Petroleum is one of the beneficiaries, one can only hope that the rigs they build work better than the Deepwater Horizon rig in the Gulf of Mexico, where an explosion in 2010 killed 11 workers and spewed some 5 million barrels of crude oil into the ocean before it was capped.

Since they stand to lose such a fortune, the fossil fuel concerns not only fund conservative think-tanks but also channel money to politicians in the U.S. Congress to get them to oppose any legislation that threatens to render their \$10 trillion infrastructure investment redundant. Koch Industries, an oil and chemicals conglomerate that is the second largest private company in the United States, is one of the biggest spenders.⁴ Since the beginning of the 2006 election cycle, the Koch Political Action Committee spent more on contributions to federal candidates (\$2.5 million) than any other fossil fuel concern PAC (ExxonMobil spent \$1.7 million). And between 2006 and 2009, they paid over \$37.9 million for direct lobbying on issues in the oil and gas industries (Greenpeace, n.d., p. 8). In addition, between 2005 and 2008, foundations supported by Koch Industries donated \$24.9 million to climate-sceptical organisations (far outspending ExxonMobil at \$8.9 million).⁵ Many of the recipients’ names are familiar: the Mercatus Center, the Americans for Prosperity Foundation, the Heritage Foundation, the Cato Institute, the Marshall Institute, and the Heartland Institute. Since Koch Industries are only one among many big donors, it is no wonder that opposing reductions in CO₂ emissions from fossil fuel burning can be such a lucrative line of business.

In his carefully documented study of the outrages perpetrated against the sciences by the Republican Party, especially during the presidencies of Nixon, Reagan and the Bushes, Chris Mooney discusses several different strategies in the political ‘war’ against science.⁶ These are pursued against a general background of ‘undermining science’, as when politicians follow creationists

in deriding Darwinian evolution as ‘just a theory’. The success of this tactic depends on the public’s ignorance of what scientific theories are and how they work. It ignores the way scientific theories interlock and, if valid, mutually support other theories: the strength of the theories of evolution and of AGW derives from their seamless fit with all other relevant theories.

There’s a long history of the suppression of scientific findings when they do not support the plans of the politicians. There are ‘smear’ campaigns directed against individual scientists with the aim of discrediting their findings. There is the rigging of the process through packing scientific advisory boards with sympathetic members, and misrepresentation of the results, through distortion, cherry-picking, or outright falsehoods. There is a consistent reliance on the ‘outliers’ and their contrarian ‘sound science’, of the kind we saw in relation to the climate sceptics. Finally, there are the tactics of ‘magnifying uncertainty’ and ‘merchandising doubt’.

A disturbing example of the success of such tactics is the continuing lack of regulation, especially in the United States, of a variety of health-endangering chemicals in consumer products. A salient example is the ‘endocrine disruptor’ bisphenol-A (or BPA), which is found in everything from plastics to canned food. Scientific studies have suggested links to breast cancer and diabetes, and to a range of attention disorders in children. BPA has recently been shown to affect various hormones, even in tiny doses, in a way that is ‘epigenetic’: by interfering the switching mechanisms of genes, it generates effects that extend over several generations.⁷ However, following the playbook of the tobacco industry in the case of smoking, the chemical industry has used its enormous wealth to block legislation that would limit the use of endocrine disruptors for the sake of public health.

Many Republican politicians argue that even if we are producing more heat-trapping gases that are making the planet warmer, that will be just fine, since after all CO₂ is a naturally occurring gas that helps plants grow. But there is general agreement among the numerous climate models that have been run that, although crop yields might increase for a time in some parts of the world, the multitude of adverse effects globally will outweigh these localised advantages by far.

Religion in U.S. Politics

The Republican war on science is a Holy War, and this is especially true of the war on climate science. The major strategist in this campaign is Senator

James M. Inhofe, who in 2003 became Chairman of the powerful Senate Committee on Environment and Public Works. In a discussion of the notorious ‘Clear Skies’ legislation, Inhofe claimed that global warming is ‘the second-largest hoax ever played on the American people, after the separation of church and state’ (Newton-Small, 2005). In his mind, the two great hoaxes are closely related, insofar as the climate sciences ignore the role played by God in controlling the climate. And yet publicly Inhofe is concerned to present himself as being well informed about the science.

The two-hour statement he delivered on the Senate floor as the new Committee Chair bears the title, ‘The Science of Climate Change’ (Inhofe, 2003). He begins by acknowledging the ‘profound responsibility’ that comes with his position as Chair, ‘because the decisions of the committee have wide-reaching impacts, influencing the health and security of every American’. In retrospect he was being overly modest here, insofar as the decisions of his committee are now influencing the health and security of most people on the planet.

Proceeding from his principle that federal agencies should ‘use the best, *non-political* science to drive decision-making’ (emphasis added), Inhofe goes on to discuss at great length what he calls ‘an important body of scientific research that refutes the anthropogenic theory of catastrophic global warming ... [and which] offers compelling proof that human activities have little impact on climate’. The ensuing discussion of ‘the Kyoto Treaty’, the IPCC Assessment Reports, the temperature record, and so forth shows that Inhofe has done a vast amount of reading – but it is all very selective, and the ‘important body’ of research turns out to be merely the work of the 2.5% of climate scientists who are sceptics, and of Seitz, Singer, the Marshall Institute, and the like. The narrative is utterly fantastic, constructed with numerous straws grasped from studies taken out of context, and darkly Orwellian in the way it exalts the contrarian fringe as ‘objective’ and ‘sound’ science while dismissing as ‘phony science’ everything that the climate science community has established through decades of peer-reviewed research. Thus, the first resounding conclusion of the two-hour speech is:

The claim that global warming is caused by man-made emissions is simply untrue and not based on sound science.

Although Inhofe had selected his sources carefully, two legitimate climate scientists, Tom Wigley and Stephen Schneider, publicly protested that Inhofe had ‘misrepresented’ their work and their views on climate change. His response was simply to ignore the protests and to continue to cite their

work without further comment – a standard tactic of the climate deniers when accused of misrepresentation.⁸

Inhofe also follows the contrarians in the argument that, even if humans are heating up the planet, more CO₂ will, in any case, be a good thing, since crop productivity is ‘30 PERCENT HIGHER IN A CO₂-ENHANCED WORLD’ (shouted block capitals in original). Which leads to the second resounding conclusion:

CO₂ does not cause catastrophic disasters – actually it would be beneficial to our environment and our economy.

In accounting for why the climate science community should be saying the opposite, Inhofe again follows the lead of the contrarian fringe. He advises his colleagues in the Senate to reject any restrictive environmental legislation,

since it is designed to satisfy the ever-growing demand of environmental groups for money and power and other extremists who simply do not like capitalism, free-markets, and freedom.... Let me be very clear: alarmists are attempting to enact an agenda of energy suppression that is inconsistent with American values of freedom, prosperity, and environmental progress.

The fundamental cultural value expressed here – the notion that capitalism, free markets, prosperity and progress must never be constrained by regulation designed to achieve social justice and protect the resource base on which all human institutions depend – helps to explain how an influential U.S. Senator can talk for two hours on ‘The Science of Climate Change’ and get everything so utterly wrong. But it also becomes clear that the main problem with Inhofe’s ‘Statement’ is that scientific evidence means nothing to him, since he already knows that human activities cannot possibly have any impact on climate. They cannot because they are nothing by comparison with God’s dominion over the world.

Now, Inhofe could not say that explicitly on the Senate Floor, nor does he in his recent book, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*. (The home page of the publisher’s website does, however, display a banner praising the site for its ‘Christian stand’, and carries the headline, ‘Israelis: Obama Birth Certificate Is Phony’.⁹) However, when a radio interviewer asked about the relevance of his citing *Genesis* 8:22 (‘as long as the earth remains there will be seed time and harvest, cold and heat, winter and summer, day and night’), Inhofe replied:

My point is, God’s still up there. The arrogance of people to think that we, human beings, would be able to change what He is doing in the climate is to me outrageous.¹⁰

If you believe, as many Republican politicians do, that human activities cannot possibly affect divine control of the climate, then, of course, none of the scientific evidence of anthropogenic forcing can even make sense, let alone be valid. This is a crucial issue, not just because Inhofe is still a member of the Committee on the Environment but also because so many Republicans – and especially those affiliated with the Tea Party – follow the line that the findings of the climate sciences *must* be wrong, or irrelevant, because they are incompatible with what they understand as God’s dominion over the earth.

Representative John Shimkus, Chair of the House Subcommittee on Environment and Economy, follows Inhofe in advocating more carbon dioxide because ‘it’s plant food’, and in his belief that God controls the fate of the planet. In a subcommittee hearing on adaptation policies for dealing with climate change, Shimkus quoted passages from *Genesis* and *Matthew* – ‘the Word of God’ which is ‘infallible, unchanging, perfect’ – and drew this conclusion:

The earth will end only when God declares it’s time to be over. Man will not destroy the earth; this earth will not be destroyed by a flood [from rising sea levels caused by climate change].

He then turned, though only briefly, to the science, saying:

Today we have about 388 parts per million [of carbon dioxide] in the atmosphere: I think in the age of the dinosaurs, when we had the most flora and fauna, we were probably around 4000 parts per million. ... There is a theological debate that this is a carbon-starved planet, *not* too much carbon. (Shimkus, 2009)

Since the dinosaurs lasted some 160 million years, it is hard to tell during what period Mr Shimkus thinks that carbon dioxide concentrations were that high, but scientific estimates of CO₂ during the mid-Cretaceous period put them at between 800 and 1600 ppm (Crowley & North, 1991). His audience may have been pleased to hear that theologians have moved on from debating how many angels can stand on the head of a pin, but there is actually very little theological debate about optimal carbon concentrations for the earth’s atmosphere, since most theologians are sensible enough to leave this one to the climate scientists.

House Representative Joe Barton, former chair of the House Energy and Commerce Committee (who has received over \$1.5 million in contributions from fossil fuel concerns), is another powerful politician whose views on climate change are grounded in the power of God.¹¹ In an interview in 2009, he claimed:

A lot of the CO₂ that is created in the United States is naturally created. You can’t regulate God. Not even the Democratic majority in the US Congress can regulate God.¹²

Then there is Ralph Hall, chair of the House Committee on Science. When asked his opinion, in an interview, on anthropogenic global warming, he replied:

I can't say it [human activity] doesn't have a percentage of effects on it ... but I don't think it's the cause. I don't think we can control what God controls. We put \$32 billion into it and don't see very much change.¹³

There it is again: the belief that mere humans by definition cannot have any significant effect on divine creation. The interviewer reminded him of the survey published by the National Academies of Science which showed that over 97% of climate scientists agree that human activities are leading to global warming.

They each get \$5,000 for every report like that they give out. That's just my guess. I don't have any proof of that. But I don't believe 'em. I still want to listen to 'em and believe what I believe I ought to believe.

Because these are facts about science that the chair of the Science Committee does not want to hear, he simply does not believe them. He negates or denies the integrity of the study by inventing some tale of corruption for which he does not 'have any proof', and simply believes what he believes he ought to believe, while at the same time claiming (for the sake of appearances?) to want to listen to what the scientists are saying. But even if he did listen, it would not shake his faith – and especially his firm conviction that we have no control over the climate because God controls it. Is he 'on the same page' then, the interviewer asks, as (Texas) Governor Perry, who has a theory that climate scientists are in a conspiracy to doctor the data to get funding for their research?

I'm pretty close. I think we ought to have an honest ear to science. They can come before my committee. I always put someone to come and testify when they're testifying against it to give them the other side. I think we oughta listen to 'em. *I just don't think we oughta mind 'em.* (Emphasis added)

This is the 'fair and balanced' approach: bring in some kind of scientist and pay him or her handsomely to present the contrarian, climate sceptical side. It is only for show anyway, since while the chair may listen to the scientists who testify before his committee, he will not pay attention to a thing they say (mind 'em), because his mind is already made up. He believes what he believes he ought to believe.

The problem here stems from a refusal (made openly by James Inhofe) to acknowledge the separation of church and state by preventing one's personal religious views from impinging on one's decisions about science and public policy. Representative Paul Broun – a member of the House

Science, Space, and Technology Committee – has claimed that, whereas ‘God’s Word is true’, evolution, embryology and the Big Bang theory are ‘lies straight from the pit of Hell’. Though he said this at a private function, he makes it clear that in his case the private thoroughly determines his work as a politician:

The Bible ... teaches us how to run all our public policy and everything in society. And that’s the reason, as your congressman, I hold the Holy Bible as being the major directions to me of how I vote in Washington, D.C., and I’ll continue to do that.¹⁴

This man disqualifies himself, as do his colleagues whom we have heard say that God takes precedence over human science and shared understanding, from being a credible member of any science committee. A government that works for the good of the people has to fire such characters for ignorance and incompetence, and replace them with people who understand natural science and acknowledge that religion has its place – but not one that allows it to preempt the evidence of science when it comes to a phenomenon such as global warming.

SYNDROMES AND SOLUTIONS

The global warming deniers, those of great faith, know that God, not human beings, controls the climate. They also trust, presumably, that although the world is filled with violence and war, much of it originating in the United States, God will not resolve it by bringing extreme weather to bear, as he did with the Flood.

And God said unto Noah, The end of all flesh is come before me; for the earth is filled with violence through them; and, behold, I will destroy them with the earth.
(*Genesis* 6:13)

The more agnostic deniers and sceptics, who acknowledge that burning fossil fuels may cause problems but insist that we cannot do anything that would impede economic growth, believe in a secular form of salvation – through cleverer technologies. There are ways, so they say, for us to continue with business as usual while reducing our emissions of greenhouse gases. To the problem of meeting our energy needs they propose a variety of technological solutions: nuclear power, carbon sequestration, fracking for natural gas and geo-engineering. (There are also biofuels, such as ethanol, but in many cases these consume as much energy to produce as they ultimately deliver, and where arable land is converted from needed food

crops to biofuel production, the glaring social injustice renders this option unconscionable.) What is common to these ‘solutions’, all of which have considerable drawbacks and attendant dangers, is a refusal to accept any natural limits on human desires, and an insistence on developing ever more complex and invasive technologies to ensure a more comfortable life (at least for those in the developed world).

Carbon Sequestration, Etc.

Carbon sequestration is an attempt to continue and extend the process of fossil fuel burning that began in earnest with the Industrial Revolution. That Revolution depended on breaking through natural limitations on the amount of energy available for human use. In the beginning, those limits were set, in the case of energy from combustion, by the amount of fuel (in the form of naturally occurring biomass) in the neighbourhood. With the advent of agriculture came the possibility of growing greater amounts of biomass than the land produced naturally. Later on coal was used as a fuel, in China long before Europe, but mining was from surface deposits, and so limited in scale. This situation lasted many centuries, until shortly before the Industrial Revolution, when Europeans found a way to combine the art of using fire with the technique of mining.

The invention of the steam engine, most efficiently fuelled by coal, and especially the steam pump, enabled in turn the development of ‘deep shaft’ coal mining. This combination of technologies allowed us to delve deeper into the earth than ever before, thereby reaching back in geological time to extract fossil biomass that was deposited, much of it, during the Carboniferous period – well over 300 million years ago. Having exhausted the capacity of fuel available on the earth’s surface, which incorporates energy received from the sun in recent times, depending on the life-span of the vegetation in question, we now surpass that limit by capturing energy that came from the sun hundreds of millions of years ago. Does that in itself not suggest we might throw off the energy balance of the planet? A prominent fire historian describes the consequences of this move to ‘industrial fire’: ‘The limitations on fire reside no longer in its sources – ignition and fuel – but in the sinks such as the atmosphere that must receive combustion’s unbounded by-products’ (Pyne, 2001, p. xvi).

Now there is fracking for natural gas, which is thrilling the United States over the prospect of greater energy independence and lower greenhouse gas emissions, as locally fracked gas takes over from imported fossil

fuels. Such enthusiasm has spread to many other countries. It is true that natural gas produces per unit of energy about half the greenhouse gas emissions of coal. But the gas extracted through fracking still belongs in that 20% of fossil fuels that is our carbon budget if we are not to endanger life on earth. And there are side-effects and by-products from the process: pollution of the water, air and soil – not to mention the enormous quantities of water that the process requires, and the attendant discharges of methane, a far more effective greenhouse gas than carbon dioxide.¹⁵

But it is perfectly safe! spokespersons of the industry assure us. Of course, don't they all say that? – the lead paint manufacturers, the tobacco companies, the synthetic chemicals industry, the GMO producers, the nanotechnology outfits – It is not *our* product that is responsible for this damage to your health or your genes. But now that we know about the correlations between smoking and lung cancer, perhaps we can discern the pattern and appreciate the dangers of fracking sooner rather than later.

Although nuclear power has so far proved much safer than fossil fuels (less destructive of human life and the natural environment per unit of energy yielded), it nevertheless bears a distinctive aura of death. This derives in part from its origins in the development of death-dealing nuclear weapons – the atomic bombs on Hiroshima and Nagasaki – but also because exposure to lower than immediately lethal doses of radiation can lead to the development of cancers and leukaemia decades later. Cancer is in one sense a refusal of certain cells, when they are damaged, to self-destruct for the greater good of the organism – a micro-scale instance of refusal to accept natural limits.¹⁶ Think what we are doing when we split atoms: with nuclear fission we penetrate the innermost kernel of the elements, and mimic on the surface of the earth processes that naturally take place only in its deepest core. Does our hubris metre not sound an alarm? Are we surprised when a consequence of exposure to this process is deadly because it disrupts the innermost workings of the living cell?

Then there are the by-products in the form of radioactive waste. No satisfactory and affordable solution has been found to the problem of how and where to store the growing amount of plutonium waste from nuclear power plants, which remains deadly for many thousands of years. Costly security measures have to be taken to guard against terrorist attacks and theft of materials usable for nuclear devices. When full safety features are included, nuclear power plants become even more expensive to build, and the costs of insuring them against accidents are so prohibitive that governments have to subsidise them, which they are increasingly unwilling to do.

Here is a case where the economics of the process are beginning to show the way – or rather the unviability of that particular way.

Many technophiles propose geo-engineering as the solution. We can keep on burning all the fossil fuels we want, as long as we counteract the warming by finding ways to remove or capture the excess carbon dioxide (of which bio-energy combined with carbon capture and storage is the most promising). Or else we devise means of reducing the natural warming effect of solar radiation: if the sun is too hot because we are generating so much of our own heat, we will simply ‘turn it down’ by sowing the stratosphere with sulphur aerosols, or some similarly untested and unpredictable method. Ever since the Romans invented and deployed the siege engine (*ingenium* in Latin – whence our word ‘ingenuity’), engines have been the driving force behind our conquest of the earth. The Industrial Revolution depended on the steam engine, and the internal combustion engine has revolutionised agriculture and transportation. We have been engineering enormous projects for a long time now – so why not the whole earth and its climate?

The Spirit of Prometheus

The current momentum of economic growth and technological progress in the developed world, and in the United States especially, would have us continue with ‘business as usual’ until we really know that we have a problem that will cost us economically. There is no thought that such transgression of the natural limits imposed on life by the resources of a finite planet may lead to trouble. If we step back and try to get a sense of what underlies this drive to push through the limits set by the natural world, it is impossible to ignore a mythical figure from the ancient Greek tradition: namely, Prometheus. Several key features in the story of Prometheus fit our current situation so perfectly, and especially our mania for consuming energy by way of the products of modern technology, that we do well to consider them – especially in the light of the punishment that follows.

The most fruitful way to understand a myth like that of Prometheus is indicated by the Neoplatonic philosopher Sallustius (fourth century) when he writes of one ancient myth, but referring to them all: ‘*These things never happened, but always are*’ (Sallustius, n.d.). The events of the Prometheus story never happened, but are always going on behind what people do. If we look at the stories from this perspective, we can see patterns of behaviour that we are enacting without realising their consequences.

The myth of Prometheus, whose name means ‘Forethought’, is complex, and comes down to us through several sources, the earliest of which is Hesiod (7th century BCE), with his *Theogony* and *Works and Days*. Prometheus, as a second-generation Titan, possesses enormous strength derived from the powers of the heavens, oceans and earth. Hesiod introduces him as being ‘shifty, quick-scheming’, and as one of several Titans who rebelled against Zeus and were punished for it. After Prometheus plays a trick on him, Zeus withholds fire from humans, whom Prometheus champions, in retaliation. But for Zeus, it is also a matter of justice: he denies human beings fire, and other ways of making life easier, so that they will continue to work hard in order to make a living, which is their role in the appointed scheme of things.

But the defiant Prometheus then enrages Zeus further by stealing fire and giving it to human beings, in return for which Zeus metes out two punishments. He punishes humans by having Hephaestus fashion ‘a beautiful maiden’ (named Pandora in *Works and Days*), who ‘wrought baneful evils for human beings’ by taking the lid off her famous jar, and by arranging the world so that humans have to work in order to survive.¹⁷ (The punishment of Prometheus himself we will consider shortly.) If it seems unjust that we humans should be punished for Prometheus’s crime, the reason becomes clear when we consider that Hesiod follows the story of Pandora by an account of the five successive human races – degenerating from gold through silver and bronze and warring demigods to the present race of iron. By the time we decline to the race of iron, all sense of justice has been lost and the strong get what they want by being arrogant and violent – *hubris*.¹⁸ And *hubris* is, of course, the prime offense of Prometheus, when he arrogantly tries to undo the just order appointed by Zeus.

In the version of the story told by the ancient tragedian Aeschylus in *Prometheus Bound*, the protagonist transgresses the natural limits set by almighty Zeus not only by giving humans fire but also by teaching them the major techniques of survival – such as house-building and woodworking, agriculture and animal husbandry, ship-building and the mining of ‘bronze, iron, silver and gold’, the sciences of arithmetic and astronomy as well as the art of medicine.¹⁹ These arts and techniques (the Greek is *technē*, the root of our word ‘technology’) make life more secure and comfortable, protecting us to some extent from injury, illness and death. Prometheus boasts not only of saving humankind from destruction but also of preventing mortals from foreseeing their fate – death – by sowing in them ‘blind hopes’.²⁰ And yet being unaware of one’s fate as mortal may prevent one from living life to the full, and having blind hopes is a sickness

if we are so bedazzled by the Promethean spirit of technology that we fail to foresee an avoidable catastrophe.

A century after Aeschylus, a version of the Prometheus story recounted by ‘the wise Protagoras’ in Plato’s dialogue of that name suggests significant limitations to the gifts that Prometheus bestowed upon humanity. Shortly before the creation, Prometheus saw that of all animals the humans were in need of protection through artificial means. So he resorted to theft:

He steals from Hephaestus and Athena artful wisdom along with fire ... and gives them to humans. In this way *humanity got the survival wisdom but did not get the political*, for that remained in the keeping of Zeus.²¹

Protagoras’s account speaks clearly to our current predicament: inspired by the spirit of Prometheus, humanity has become highly skilled in the technical arts of survival (while forgetting that these skills are gifts and stolen goods), but lacks the political arts that would integrate technological expertise with the art of living together in communities – and especially now that it must also live in a community that is global.

A later source for the Prometheus story is Ovid’s *Metamorphoses* (8 CE), the first book of which has the Titan himself create the human race by moulding it from mud or clay. On the model of Hesiod’s story of the degenerating races of men, Ovid then recounts a decline through four ages, or eras. At the nadir, a race of Giants even rises up against the Gods. The degeneration goes along with a growth in human hubris occasioned by increasing proficiency in the Promethean arts of agriculture, house-building, and mining.²² The arrogance of humans so angers Zeus that he sends a flood to annihilate all but a single couple, Deucalion (the son of Prometheus!) and his wife Pyrrha, who ride out the flood in a boat. Deucalion then recreates men from rocks and stones, while his wife does the same for women.²³ This division of labour suggests that men are more likely than women to be driven by Promethean urges, and that the raw materials for this new human race will make it harder and less flexible than the initial generation fashioned from mud or clay.

Ovid deplores the mining that was developed during the Age of Iron because of the way its products lead to further decadence: gold is used for ostentatious luxury and iron for weapons to fight wars (mainly to get one’s hands on other people’s gold). The great Roman historian of natural science Pliny the Elder, who was born just a few years after Ovid’s death, condemns the practice of mining for its sacrilegious aspects as well.

We trace out all the veins of the earth, and yet, living upon it, undermined as it is beneath our feet, are astonished that it should occasionally cleave asunder or tremble:

as though in truth these signs could be any other than expressions of the indignation felt by our sacred parent! We penetrate into her entrails, and seek for treasures in the abodes of the spirits of the dead, as though each spot we tread upon were not sufficiently bounteous and fertile for us!²⁴

But from the perspective of today's geosciences, we know that earthquakes are not caused by mining – or do we? It appears that, at least in earthquake-prone areas, geothermal projects that pump water deep into the earth's crust can cause tremors of over 3 on the Richter scale.²⁵ Fracking seems to have a similar effect. What is more, geophysicists have shown how continued extraction and combustion of fossil fuels, together with the consequent global warming, promise to occasion greater and more frequent convulsions of the earth.²⁶ Whatever the nature of the causal circumstances, Pliny's idea that delving into the bowels of the earth is an affront to the earth goddess resonates in many of the world's ancient cultures, and is a call whose meaning we would do well to try to fathom today.

Let us not forget that Prometheus, whose sacrilegious theft set in train all this ingenuity, was severely punished for his crime. According to Hesiod, our oldest source:

With painful fetters Zeus bound shifty-planning Prometheus, with distressful bonds, driving them through the middle of a pillar; and he set upon him a long-winged eagle which ate his immortal liver, but this grew again on all sides at night just as much as the long-winged bird would eat during the whole day.²⁷

In antiquity the liver, as the most powerful and blood-rich organ in the body, was well understood and highly regarded as 'the seat of life', and so this punishment strikes at the core of the transgressor's existence. And as we moderns insist on transgressing natural limits through too much clever technology, we may find that the source of our very vitality is being depleted on a daily basis.

From the beginning of Aeschylus's drama, Prometheus's immobility is emphasised. Hephaestus nails him to the rock with fetters and wedges that 'leave it loose nowhere', and drives 'the obstinate jaw of the adamantine wedge right through his breast'.²⁸ This physical immobility, which lasts throughout the play, is mirrored by a psychological fixation, by the protagonist's pride, stubbornness and utter inflexibility. For one so obstinate in the assertion of self-will against higher powers, the punishment of complete immobilisation is fitting. At the end of *Prometheus Bound*, he remains just where he was at the start, having suffered physical torment but no change of mind or heart, intractable in his defiance of the most powerful God. In thrall to Prometheus's gifts of technology, we display a similar

intransigence. In our determination to persist in warming the earth's atmosphere, despite warnings from floods, droughts, hurricanes, tornadoes and other manifestations of extreme weather, we are enacting the old drama once again – blithely oblivious to the punishment in store.

Some will say we need not take the Prometheus story so seriously, since Hesiod's account of his punishment ends with his release (albeit after 'countless years of time'): with the consent of Zeus, the heroic Heracles liberates the suffering Prometheus. However, one might well be wary of a freedom effected by Heracles: not the most intelligent of heroes, he usually employs his enormous muscle power to work *against* natural forces. (Nine of his famous Twelve Labours involve overpowering wild animals or monsters by killing or capturing them.) What corresponds nowadays to rescue by Hercules would be tricky enterprises like carbon sequestration, fracking, nuclear power and geo-engineering, which allow us to persist in our ways in the unquestioning faith that new technology will provide a fix that will keep us living comfortably. All of them 'blind hopes' bestowed upon us by Prometheus. The problem lies not so much in the Promethean arts per se, most of which could be practised sustainably, but rather in the way we use them and then get carried away by the results. Here we consistently fail to cultivate that other gift from Prometheus, namely foresight.

Renewable Energy and Sufficiency

Two far better ways are open to us, if we drop the obsession with 'meeting our energy needs': we can reduce our rate of consumption by conserving energy and using it more efficiently, and we can switch to clean, renewable energy sources.

A thousand-page report published in 2012 by the IPCC shows that renewable forms of energy (bioenergy, solar, geothermal, hydropower, ocean and wind energy) can provide 80% of the world's requirements by mid-century – but only if governments actively promote them ([United Nations Environment Programme, UNEP, 2012](#)). These figures are truly remarkable (though meaningless without that support from the world's governments), since the received wisdom has been that renewable energy is incapable, owing to its dependence on weather and other local conditions, of satisfying sustained demand. This report has not received the degree of attention it deserves, but its results have to be taken seriously because of the genuinely international and non-partisan make-up of the enormous research team that conducted the study.²⁹

If the shift to clean and renewable sources of energy is accompanied by increases in energy efficiency and reductions in wasteful use, an even larger percentage of ‘the world’s requirements’ could be provided by such sources well before the year 2050, while at the same time ensuring that considerations of social and global justice are taken into account and acted on.

Environmental economists have been saying for years that the first step in the transition is for governments – first and foremost the United States – to end subsidies for the fossil fuel concerns and put the funds into research and development of clean, non-carbon, renewable energy technologies. With additional funding to enable economies of scale that would make these technologies affordable globally, the transition could be swift enough to avert disaster – not to mention a less painful expense than continuing inaction would incur. Something like this was accomplished from the late 1950s through to the 1980s when the U.S. government invested (initially for reasons of military strategy) in the microchip technology that eventually enabled the World Wide Web. When the vast infusion of government funds had made it attractive for venture capitalists to invest, the economies of scale kicked in, start-ups proliferated, and a multitude of high technology industries took off.³⁰

In 2001, George W. Bush reneged on the American commitment to the Kyoto Protocol because reducing carbon emissions would ‘hurt the US economy’, and this canard has become a mantra for the Republicans ever since. The Kyoto Protocol had its flaws, but the Republicans have the economics all wrong. Commentators have been warning for years that, on the contrary, the United States is missing a great opportunity to be the economic leader in renewable energy technology.³¹ And, of course, they were right: China now dominates the world market in solar panels, for example. Taken as a whole, Europe is the biggest investor in renewable energy, with the United States pathetically taking third place to China.

China is actually the third crucial obstacle in the way of resolving the problem of global warming. Once the United States, as the country that has emitted the greatest amount of greenhouse gases, sees its way to taking remedial action, the next most urgent task will be to ensure that China, and then India, follows suit. The problem is that in spite of its burgeoning numbers of billionaires, China is still a developing country with some 200 million living in poverty, and hundreds of millions more without adequate housing and sanitation. The country has the resources to alleviate these conditions – but only by burning its enormous reserves of coal. If the Chinese do that, the planet will burn. (But this is the topic of an article to follow this one.)

China can never be persuaded to leave its coal in the ground unless the most highly developed countries reduce their level of consumption. This is not the unmitigated evil that people fear. The change will require some psychological adjustment, and a subsequent change in our economic system. There is no reason to suppose that these measures will diminish what is really important: not short-term pleasure or happiness, but human flourishing, lives that are meaningful and fulfilled. A survey of the ancient wisdom of the world's philosophical and religious traditions reveals that not one of them claims that a fulfilled human life is to be attained by high levels of consumption of energy or goods. Indeed, they all say quite the opposite.

The almost universal lesson concerns how much is enough, and teaches that enough is less than we think. So, given a sufficiency, and perhaps a modest amount more to moderate the austerity, when faced with an enticing product of super-capitalism there are usually *nine good reasons not to buy it*:

1. You save money, in the amount of the purchase price.
2. You don't have to clean it, keep it up or repair it if it breaks.
3. No need to protect against theft, insure it or in any way secure it.
4. You never have to bother with either storing or moving it.
5. If you don't own it, you can't lose it, or waste time looking for it.
6. There is no need to dispose of it, or take the trouble to recycle it.

And when the Grim Reaper arrives to tell you that it is time to go, you realise:

7. You can't take it with you – so you certainly do not need to pack it.
8. And since you can't bequeath it if you are not the owner, your heirs can't possibly squabble over it.
9. If *nobody* ever buys it, they will eventually have to stop making it – and that will save natural resources, reduce pollution and make everybody happier (once they get used to not needing it).

It goes without saying that if people heed these reasons and gradually stop buying things they do not really need, this will weaken the hold of global capitalism and reduce exploitation of human labour and the earth.³²

Since this is unlikely to persuade committed consumers to change their ways, it should be noted that considerations of global justice and fairness require that people in the developed world scale back their consumption to allow the rest of the world to attain a decent standard of living. Mass media now broadcast the so-called joys of advanced consumer culture, via satellite dishes, to almost all parts of the globe, so that people in the

developing countries have come to think that is what they want, too. To say to them ‘We’re sorry, but we got here first and it’s too late for you to join the party’ is unlikely to convince.

Religion and Money Out of Politics

One of the first thinkers to have dealt with the question of the proper places of science and religion in society was John Tyndall, who was not only a great teacher of science but also something of a philosopher, having studied at the University of Marburg and in Berlin. One of his major contributions in this area was to restrict the traditional involvement of religious considerations in the practice of the natural sciences. In 1874, he was elected president of the British Science Association, and he delivered for his inauguration in Belfast a highly controversial presidential address – controversial because of his outspoken insistence that religion no longer be allowed to trespass on the domain of science.³³ Loud though he spoke out, Tyndall’s approach was nuanced and philosophically sophisticated. He warns against deriding the religious sentiment (as the fundamentalist atheists of today like to do with such gleeful vehemence) because it enjoys what he calls ‘an immovable basis ... in the nature of man’. The most pressing problem of the present, he says (and I would say, of our present too), is how ‘to yield this sentiment reasonable satisfaction’. He continues:

Grotesque in relation to scientific culture as many of the religions of the world have been and are – dangerous, nay destructive, to the dearest privileges of freemen as some of them undoubtedly have been, and would, if they could, be again – it will be wise to recognize them as the forms of a force, mischievous, if permitted to intrude on the region of *knowledge*, over which it holds no command, but capable of being guided to noble issues in the region of *emotion*, which is its proper and elevated sphere.³⁴

There is a proper place, then, for the formidable force of religious feeling, but when it infringes on scientific culture it causes mischief and mayhem: not only burnings of books regarded as heretical but also burnings of their authors at the stake – witness the sad case of Giordano Bruno (of whose ‘pantheism’ Tyndall speaks with great admiration in his Belfast address). Tyndall goes on to stake out an inviolable place for science in society:

All religious theories, schemes and systems, which embrace notions of cosmogony, or which otherwise reach into the domain of science, must, *in so far as they do this*, submit to the control of science, and relinquish all thought of controlling it. Acting otherwise proved disastrous in the past, and it is simply fatuous today.

What was fatuous in Tyndall's day was the rejection of Darwin's theory of evolution by believers in the literal truth of the creation stories in the Book of Genesis. The prevalence in our day of 'scientific creationism', or (another fine oxymoron) 'creation science', vividly displays the dangers of democracy when a large enough proportion of the electorate is ignorant. A Gallup Poll published in 2012 showed that 46% of Americans subscribe to a creationist view of human origins, while the figure among declared Republican voters is 58% (Gallup & Newport, 2012).

Not long after Tyndall gave his address in Belfast, a more trenchant critic of Christianity, Friedrich Nietzsche, similarly emphasized the need to keep religion from encroaching on science. Like Tyndall, Nietzsche acknowledged its prevalence in human societies and the importance of some of its functions, though he thought the control should be exercised by philosophy rather than by natural science:

It always costs dearly and terribly when religions reign *not* as means of cultivation and education in the hands of the philosopher, but reign for themselves and as *sovereign*, when they want to be ultimate ends and not mere means among other means.³⁵

There is nothing wrong, for Nietzsche, with religions, as long as they remain under the rule of philosophy – so that their energies can be directed towards saving the earth rather than destroying it. Let us consider how this might work, in practice, since religious beliefs often strongly condition people's relations with the natural world, and consequently how they treat the earth and the other forms of life with which we share it.

Since philosophy is a different enterprise from religion, it is in a position to survey the world's religions disinterestedly with a view to highlighting those aspects of them that would conduce to saving the earth rather than destroying it. Both Christianity and Islam have been criticized by environmental thinkers for denigrating the natural world and exalting its Creator, and for fostering human arrogance by encouraging dominance over the rest of creation. However, many of the relevant passages in the scriptures can be interpreted less anthropocentrically, as Muslim and Christian theologians have done in recent decades by emphasizing humans' responsibility for taking the best possible care of God's creation.

One can shift the focus to those passages in the scriptures that praise the goodness and beauty of the earth as God's creation. If the God of the three great monotheisms consistently finds his creation 'good' and 'very good', then who are we to denigrate and desecrate it?³⁶ This constitutes a powerful justification of the inherent worth of natural phenomena, which would give us reason not to extinguish other species with such nonchalance, as

opposed to their merely extrinsic usefulness to humans, which we take as license to exploit them for our own ends. So if (as we read in *Ephesians*) ‘in the dispensation of the fullness of times God might gather together in one all things in Christ, both which are in heaven, and which are on earth, even in him’, we had better ‘consider the lilies of the field, how they grow’, and make sure that not one of them has been gratuitously destroyed by human toil.³⁷

The lilies of the field, along with many other kinds of plant, have been devastated by the impact of human agriculture, which increases naturally as world population grows. Back in the 1960s, scientists like Paul Ehrlich drew attention to the dangers of burgeoning population, and especially for the natural environment. Ehrlich (with John Holdren) formulated the IPAT equation ($I = P \times A \times T$), which says that the environmental impact of human activity is a function of population, affluence and technology, remains helpful to this day. But although discussions of environmental problems used to emphasise, for good reason, the importance of restraining population growth, the issue of population steadily became less prominent – perhaps in response to disapproval from religious leaders (and especially the Pope).³⁸

This is another case where one needs to question the contemporary appropriateness of passages from Holy Scripture. The Old Testament injunctions to ‘Be fruitful and multiply’ were perfectly apposite when the tribes of Israel numbered so few, and were in danger of annihilation. But the equating of piety with fecundity that many religions promote now deserves to be questioned. William LaFleur has called this phenomenon ‘fecundism’, defined as ‘the attribution of religious value and significance to reproductivity, especially if large numbers of progeny were a major part of the intentionality of sex’.³⁹ In a world of 7 billion people, projected to rise to 9 billion over the next 30 years, the promotion of fecundism is inappropriate and irresponsible. When you look into the reasons behind enthusiasm for burgeoning populations, they are rarely reassuring: it is usually a matter of people’s wanting to have many more of ‘us’ so that there will be relatively fewer of ‘them’.

As for money and politics, it is best, as Plato urged, to insulate the rulers as far as possible from any personal profit or gain. You clothe and feed and house them, decently but not luxuriously. Just as the best doctor is an expert who practises for the good of the patient and not for his own advantage, the best rulers work to benefit the ruled and not themselves – or themselves only as members of the society as a whole. If Plato’s ideal is considered impossible to realise, we can at least aim for it by getting money

out of politics as much as possible. Otherwise you have a travesty of democracy, as in the United States nowadays, where in effect a plutocracy of the 1% exploits the rest of the population for their own personal gain.

A number of steps can be taken to mitigate the dangers of climate change, of which the last two are crucial.

As far as science is concerned, the ‘disagreements’ with climate science expressed by the sceptics and deniers have to be ignored – unless they change their ways and engage the scientific community by producing peer-reviewed research of their own. The political ‘war against science’ has to stop, so that scientists can pursue their research free from government intervention or censorship; and scientists have to disclose any financial interests (such as large salaries from conservative think tanks) that might bias their findings. Climate scientists need to buttress or, in some cases, restore public confidence in the validity of their work by articulating the problems we face in language comprehensible by non-experts.

In economics, the falsehood of the claim that it will cost too much to act to prevent disastrous climate change now, rather than wait until it gets really bad, needs to be exposed as such; and the consensus among environmental economists that it is better economically to take immediate action has to be communicated by the media. The system needs to become more realistic: the costs to the environment and human health of emissions from fossil fuel burning, currently treated as ‘externalities’ in defiance of the ‘polluter pays’ principle, have to be internalised, whether by a tax on carbon or some fairer and more efficient method devised by economists. Advocates of the needed shift to renewable and sustainable sources of energy have to understand the psychology of acceptance and denial on the part of the public, and formulate their messages accordingly.

People in the developed nations have to cut back on energy use and consumption of consumer goods, which are already causing misery in the developing world and stand to leave for future generations an impossibly compromised planet. If we give it a try, we may find that, contrary to our expectations, we end up happier and more fulfilled as a result – quite apart from considerations of social and international and transgenerational justice.

The world is waiting for the United States to take action to mitigate global warming – but that is where we find the two most crucial obstructions to progress: profits directing politics and religion dictating policies. The world’s religions are in general well disposed towards saving the earth, as evidenced by such movements as ecotheology and other religious engagements with raising ecological consciousness, but a type of Christianity in

the United States is perverting democratic processes there towards a kind of fundamentalist theocracy. A first step would be to remove the religious zealots from all congressional and state committees that have to do with making policy on the basis of the natural sciences.

Money needs to be kept out of politics as much as possible, through campaign finance reforms that make it more likely that politicians will act for the public good rather than personal profit. The task of reducing the political power of the rich fossil fuel concerns requires a top-down political solution. Grass roots movements to curb consumerism and encourage people to buy only things they really need – preferably of good quality so they will last – are admirable and can affect some degree of change in our economic system. But while some people have been able to get themselves ‘off the grid’ by switching to photovoltaic and solar panels and other renewable energy sources, for most of us in the developed world, it is hard to get by without electricity, and minimal consumption of gas and oil.

We need strong political leadership on this front, and voters who make it clear the direction they want to go. We need politicians who will sit down with the CEOs of the fossil fuel industries and explain to them why they cannot burn more than 20% of their enormous reserves without destroying the planet. Since the industries can hardly argue that their profits should outweigh the livelihoods of millions in the developing world and coming generations in the developed world, a constructive dialogue about how to proceed ought to be possible.

One bright ray of hope in this dismal situation comes from the Fossil Fuel Divestment campaign initiated by Bill McKibben’s 350.org, which aims to persuade universities with endowments to withdraw their investments in fossil fuel industries. Their model is the successful campaign in the 1980s that persuaded universities with large endowments to withdraw their investments in stocks of companies operating in South Africa under apartheid. Some universities with smaller endowments are divesting, but the largest endowment in the world is standing firm. Although students at Harvard recently voted overwhelmingly in favour of divesting, the University’s response was curt, without explanation: ‘Harvard is not considering divesting from companies related to fossil fuels’ (Gillis, 2012). And why not? Does one of the world’s top universities have no sense of civic responsibility, no other concern than for its own wealth, at the expense of the global public good?

The World Bank recently commissioned a study from the Potsdam Institute, which was published in November 2012 under the title *Turn*

Down the Heat: Why a 4°C Warmer World Must Be Avoided (The World Bank, 2012). At 64 pages of main text, it is admirably comprehensive and concise, and should be read by anyone interested in the fate of the planet. Calculating future climate sensitivity – the ways climate will respond to the various forcings to which human activity is subjecting it – is necessarily an uncertain exercise, but the authors of this study estimate the risks in an eminently sober manner. Compare the risks of a 2°C rise, which member states of the United Nations agreed posed the maximum permissible risk, with some projections of our ‘no need to worry’ and ‘business as usual’ scenario, which estimate a rise of 5°C or even 6°C by the end of the century. The prospects of a 4°C rise are dismal enough – and if we reach one or more climate tipping points on the way, we might as well give up all hope of a habitable planet.

For the ancient Greeks, philosophy begins with *wonder*: wonder at the ways the world works and even at its very existence. The present essay in philosophy ends with wonder: wonder at the colossal stupidity of what we as a species are doing to the earth, on which we depend for our very existence.

NOTES

1. Plato (1991), *Republic*, book 1, 346c–347d; book 3, 416d–417a.
2. For an illuminating discussion of the international issues involved here, see Vanderheiden (2008, 2009).
3. IEA analysis of fossil-fuel subsidies (n.d.).
4. For an excellent overview of the political activities of Charles and David Koch, see Mayer (2010).
5. Greenpeace (n.d., p. 6.) For more information on the activities of Koch Industries, see the web page by the Center for Media & Democracy (n.d.).
6. Mooney (2006, 84ff). Mooney admits that non-Republican politicians are also guilty of abuses, though lesser and not as systematic.
7. See, for example, Diamanti-Kandarakis et al. (2009); Vandenberg et al. (2012); and Wolstenholme et al. (2012).
8. See Mooney (2006, pp. 99–100).
9. Inhofe (2012). The website: WND – A Free Press for a Free People. (n.d.)
10. Senator James Inhofe, radio interview, ‘Crosstalk’, Voice of Christian Youth America, March 8, 2012; audible at: Tashman (2012).
11. On Barton’s income from fossil fuel concerns, see Kreighbaum (2010).
12. Quoted from Frick (2009).
13. Ralph Hall, quoted in Davenport (2011). The text of the full interview with Hall, together with further remarks by Hall, is available at Mervis (2011).
14. Representative Paul Broun, speech at a sportsman’s banquet on 27 September 2012, as reported by Pearce (2012).

15. See also the series by Ian Urbina for the *New York Times*, ‘Drilling Down’, Urbina (n.d.).

16. On this topic, see my essay (Parkes, 2012) ‘Nuclear Power after Fukushima 2011: Promethean and Buddhist Perspectives’.

17. Hesiod. (n.d.-a, n.d.-b), *Theogony*, lines 517–616; *Works and Days*, lines 47–105.

18. Hesiod (n.d.-b), *Works and Days*, lines 174–201.

19. Aeschylus (1990), *Prometheus Bound*, lines 450–505.

20. Aeschylus (1990), *Prometheus Bound*, 250-53. There is a reference to Prometheus’s depriving men of knowledge of their death in Plato, *Gorgias*, 523d–e.

21. Plato, *Protagoras* 321c–d; see Lampert (2010).

22. Hesiod, *Works and Days*, lines 109–201; Ovid (1995), Book I, 6–8.

23. Ovid (1995, I, 5–6, 17–19).

24. Pliny, Club, and Holland (1847), *Natural History*, Book xxxiii, Chapter 1.

25. A Swiss (and distinctly Promethean) geothermal energy project, the Enhanced Geothermal System (EGS), was halted in Basel in 2009 after studies projected millions of dollars of damage would be caused every year by the consequent earth tremors. Not so surprising a projection since the project was sited in an earthquake zone: the city of Basel was destroyed in 1356 by an earthquake estimated to have been 6.5 on the Richter scale, Glanz (2009).

26. See, for example, McGuire (2012).

27. Hesiod, *Theogony*, lines 521–25. The image is most powerfully rendered by Rubens (1612) in his magnificent *Prometheus Bound*.

28. Aeschylus, *Prometheus Bound*, lines 52–65.

29. The study was conducted by ‘an author team of 122 Lead Authors (33 from developing countries, 4 from economies-in-transition countries, and 85 from industrialized countries), 25 review editors and 132 contributing authors’. The IPCC review procedure requires that drafts produced by the authors were subject to two reviews, in the course of which ‘24,766 comments from more than 350 expert reviewers and governments and international organizations were processed’ (ix).

30. See, for example, Shellenberger and Nordhaus (2007, pp. 122–23).

31. See Friedman (2008); Friedman and Mandelbaum (2012).

32. The insidiousness of consumerism is compounded when, as during the past few decades, it is based on incurring high levels of debt. See John Barry (2012, pp. 255ff). This excellent study, as its subtitle suggests (*Human Flourishing in a Climate-Changed, Carbon-Constrained World*), helpfully reminds us of a consideration generally ignored in the debates over what to do about global warming: namely human flourishing.

33. In those days, it was known as The British Association. The full text can be found at Tyndall (1874).

34. Tyndall, Belfast Address, pp. 60–61.

35. Nietzsche (2013), *Beyond Good and Evil*, aphorism 62.

36. *Genesis* 1: 10-31. Also: ‘All things were created by God, and for him: And he is before all things, and by him all things consist’. (*Colossians* 1:16–17)

37. *Ephesians* 1:10; *Matthew* 6:28.

38. See the 1995 encyclical letter *Evangelium Vitae* (‘The Gospel of Life’) by Pope John Paul II (1995), and William LaFleur’s (1996) response: ‘Ending Fecundism:

An Open Letter to Pope John Paul II Concerning Contraception, Religion, and Ecology' (1996).

39. The term 'fecundism' was coined by Bill LaFleur; see LaFleur (1992, p. 88).

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