

**Environmental Law Foundation**  
**The Professor David Hall Lecture**  
**“Climate Change: A crisis of collective denial?”**  
**by George Monbiot**  
**Wednesday 4 May 2005 at the Law Society**

**Degrees of warming**

I find it very hard to get my head around what we are facing, and I wonder sometimes if we, as human beings, are capable of understanding what the figures we keep hearing mean. The Intergovernmental Panel on Climate Change (IPCC) tells us that we are looking at between 1.4 and 5.8 degrees centigrade of warming this century. Well, we know what the figures mean but it is very hard to make any sense of them. Some scientists say that we are looking at ten or 12 degrees of warming this century. Again, it just sounds like an alteration in your bath water, it's not something which is easy to connect with. So to try to give you a sense of the scale of these changes, I would like to start by talking about what happened to the world the last time we saw a temperature rise which took place rapidly of the sort of scale of the upper estimate of the IPCC, that is, in other words, six degrees.

This took place 251 million years ago at the end of the period we call the Permian and indeed it brought that period, as geological periods are marked by the fossil record, to an end. What appears to have happened was that there was a very large number of volcanic eruptions in Siberia, the area we call the Siberian Traps, this great basalt, where there are huge outpourings of basalt. These eruptions led to an outpouring of sulphur dioxide and an outpouring of carbon dioxide. Sulphur dioxide created acid rain which wiped out quite a lot of the world's plant life. But it quickly leached from the atmosphere. The longer term problem was created by the carbon dioxide and this was a very large outpouring. Enough to raise the world's temperature probably by a degree or two and that was sufficient to de-stabilise, effectively to melt, very large quantities of the methane hydrates, a sort of methane ice-cream which exists on the fringes of the polar seas. It existed in large quantities then and it exists in large quantities now. It's a super concentrated pressurised and frozen gas which when partially melted and de-stabilised it belches to the surface. Methane is a far more potent greenhouse gas than carbon dioxide and as methane was released it warmed the planet still further causing the further release of methane which warmed the planet still further and I think you get the general idea – runaway global warming. This led to a global temperature, and we can be very precise about this because of the oxygen isotope work which demonstrates this 251 million years ago, a global temperature rise of more or less exactly six degrees, more or less exactly the upper limit forecast by the IPCC. And now, I regret to say, half the upper limit forecast by some of the scientists whose work has appeared since the 2001 report of the IPCC.

So what happened? What did this six degree rise in global temperature do? It pretty well brought life on earth to an end. It wiped out 90% of all known species, the fossil record pretty well comes to a stop. Virtually everything in the sea from plankton to sharks. Coral reefs were completely eliminated not to reappear on earth for 10 million years. On land, basically the land turned to rubble. The vegetation died off very quickly, it couldn't cope with the rapid temperature change. It no longer held the soil together. The soil washed away into the sea very rapidly creating anoxic environments at the bottom of the sea and all sorts of other knock-on effects. And of course there was nothing left

for the animals on earth's surface to eat. There was drop of total biological production of around 95%, that's a drop in the things available to eat for any animal existing on earth of around 95%. Only two quadrupeds, large four-footed animals, well, two which we know about, survived the end of the Permian period. They were the only things which managed to get through that catastrophic event. And indeed only one of them became at all common. It was a pig-like animal which came to dominate the ecology for a few million years because it was the only thing around. There were no predators and no competitors. There was just this one species which was an omnivorous creature and it could get by by eating just about anything and it had to get by by eating just about anything. Nothing else was left. If this scenario were to be repeated and we were to see another rapid six degree rise in temperature on earth now, as the IPCC is predicting, which comes entirely from man-made greenhouse gas emissions (it doesn't take into account the impacts of the possible release of methane hydrate) then just through those man-made emissions alone we have the preconditions for bringing human life and nearly all other life forms to an end. And, in case you are one of those people who thinks, "Well, that's going to be good for the planet", bear in mind that it took 150 million years for biodiversity to get back to the level that it was at during the Permian period before that release of carbon dioxide.

### **Lack of action**

This is what we are facing. We are not facing the end of holidays in Seville because Seville is too hot to go to anymore, we are facing the end of human existence. And this is a very, very hard thing for people to face. So what are we doing? Are we panicking, are we screaming, are we dragging people out of their SUVs? No. It has hardly even figured as an election issue. Instead, we seem to be doing as little as we can possibly do. If you look first of all at what the governments are doing we see Tony Blair making endless extravagant promises about the carbon cuts he intends to introduce while knowing full well that he has absolutely no intention of introducing those cuts. He has no more intention of creating the pre-conditions for a 20% cut by 2010 than I have of becoming a Catholic priest. It's just not going to happen on the current trajectory. The last two years, 2003 and 2004, have both seen a rise in carbon emissions. In fact, the embarrassing truth from a Labour point of view is that carbon emissions fell during the last six years of the Tory government and have risen across the period of Labour's government. This is a very alarming truth and it's going to get a lot worse.

We envisage, at the moment, a rise in aircraft passenger numbers from 180 million in 2000 to 476 million in 2030 and that alone wipes out every single progressive measure which the government claims to be making towards sorting out climate change. What Blair is doing, and I think he is fully cognisant of this, is making all the right noises because he knows what a big issue this is and he knows that it will become a bigger and bigger political issue but there's going to be no accounting for his failure until long after he is out of office, long after any possible perpetuation of Blair's stay in office. We can blame Blair for that but we should also blame ourselves because he knows that however much we call for massive and dramatic action to cope with climate change we don't really mean it. We are not yet prepared to give up the things we need to give up if we are to see that action actually crystallising. And we don't really in our heart of hearts want it to happen.

If you look at the other side of the Atlantic, if you dare, you will see an administration which has done everything in its power to pour cold water on the idea of climate

change, everything in its power to dismiss and denigrate the threat and indeed to dismiss and denigrate the scientists who have been alerting us to the nature of the threat. It has done everything in its power to destroy, first, the Kyoto Protocol, the only international treaty we have which has any hope of starting some progress towards dealing with climate change and, now, to destroy the treaty which must surely replace the Kyoto Protocol in 2012 when it runs out. Indeed, the Bush administration sent a delegation to Buenos Aires, even though it did not have negotiating rights because it is not a signatory to Kyoto, with the sole purpose of destroying talks on a future treaty. It then stands up and says it can't possibly sign because China and India aren't signing, but in Buenos Aires in December it got together with China and India to prevent any progress from being made. When the head of the US delegation was asked, "What do you intend to do about climate change post-2012?" he said, "That's something we'll deal with in 2012". They are effectively saying, "We will work out what to do about homeland security when the plane is flying in the tower". If you extend that analogy further you see this extraordinary disjunction between Bush's massive boosting and talking up of the terrorist threat. The idea that any one of us [is under threat] at any time, even if you run a service station in Paya Ria, Al Qaeda will stop at nothing until it has destroyed that service station and destroyed you. This constant invocation of this mortal existential threat and at the same time dismissing the real mortal existential threat which really will get the man running the service station in Paya Ria and every other human being on the planet. The precautionary principle when it comes to terrorism is applied so enthusiastically by George Bush that it now threatens American civil liberties. But when it applies to the environment it is dismissed out of hand and anyone who promotes the idea of the precautionary principle is a communist. But the problem is that's it's not just coming from Bush. When his father said at the 1992 Rio summit that the American way of life is not negotiable, he was talking on behalf of the American people. Indeed, he was talking on behalf of the people of the rich world. We do not yet accept the need for action because we do not yet accept the implications for action.

### **Deception**

I've got a similar attitude towards the so-called 'climate sceptics', a very misleading term because 'sceptics' are people who actually want to get at the truth whereas most of the people who call themselves 'climate sceptics' are funded by Exxon Mobil and they want anything but to get at the truth. Their whole point is to cloud and obfuscate the truth. Now led, extraordinarily, by that former environmentalist David Bellamy. They have an extraordinary degree of access to the media. Every time the BBC or anyone else wants to discuss climate change they say that in the interest of a balanced debate we are going to have someone that says it does happen and someone saying it doesn't happen. It's a bit like every time someone wants to discuss lung cancer you get someone on saying smoking does cause it and someone on saying smoking doesn't cause it. Or if you want to talk about AIDS, HIV does cause it and HIV doesn't cause it. Every time a rocket goes into orbit, you have someone from the Flat Earth Society coming along to tell you it can't possibly have happened. That is the level of this profound deception and if any of those things were happening the BBC and institutions like it would see that they were being grotesquely irresponsible. But the science of climate change is as certain, the consensus is as solid, as the consensus behind the link between smoking and lung cancer and the link between HIV and AIDS. And yet that consensus is not represented in the media. Indeed the media is full of the most extraordinary claims, quite staggering stuff about the basic denial of physical reality. Whenever you meet one of these people you should ask them the following questions: Is there carbon dioxide in

the atmosphere? Does the carbon dioxide in the atmosphere have an affect on global temperature? If more carbon dioxide is added to the atmosphere will that change the effect on global temperature? Are we adding more carbon dioxide to the atmosphere? In other words, you discover at what point they part company with basic physics.

But they still have this incredible purchase on our minds. David Bellamy is still able to write to the New Scientist two weeks' ago with a set of wholly made-up figures about glacial advance, claiming that 555 of 625 glaciers around the world are advancing. There are no such figures, they do not exist. I have been everywhere in looking for them. He claims they came from the World Glacier Monitoring Service. I contacted the World Glacier Monitoring Service. The most recent figures they have involve 88 glaciers and 82 of them are retreating. He just makes it up and yet this stuff is instantly all over the web and the climate sceptics (climate deniers) say "Ha ha we've got you – ya boo to the climate scientists, we can dismiss the entire cannon of their science". But there's a part of all of us that wants them to dismiss it, there's a part of all of us that really, really does not want to believe it.

The question I want to ask in this talk is, why? Why is it that we can accept the threat of terrorism and the implications of the threat and accept the changes to our lives which are necessary because of this supposed threat, and let me say it is highly unlikely that anyone in this room will ever be nobbled by a terrorist, and yet we cannot accept, not the threat but the absolute certainty of, climate change unless we do something very, very drastic indeed. We cannot accept that and we cannot accept the measures required to prevent that threat from taking place.

### **Our perception**

So why? Well, I think there are several reasons. I think some of them are psychological, some of them are economic, some are historical, some of them sit at the very centre of our being and I would like to start with what I think is a fundamental problem of human perception that is that we are not really in touch with material reality. There is a small rational part of our brain which recognises material realities and accepts that as those realities change so too do our lives change. But underlying that superficial reason is a deep semi-consciousness which absorbs the moment in which we live, generalises it and then projects our future as repeated instances of that moment. It is a dream-world in which we live and a dream world created by this very moment now. This very moment now is the moment in which we continue to live. A continued recycling, like a piece of film looped again and again, that is how we project our future in my view and certainly I feel I do this in my mind. What that means, effectively, is that the only difference between us and the indigenous people of Australia is that they recognise that we live in a dream world and we do not. And we do not recognise really deep down beneath this superficial world of our reason we have created this reality, a reality which is based on that projection of the present into the future which makes it very, very hard for us to engage with the future which is massively different to the present in which we live.

That is one of the fundamental starting points and that problem is compounded by the fact that when we do absorb the present, even in climatic terms, it is a pretty good place in which to live. Life's getting better not worse at the moment. Our winters are getting shorter, our summers are getting longer and warmer, it's lovely. Yes, a few thousand people in the rich world have died as a result of floods and heatwaves but for almost all of us, almost all of the time, we have been blessed by our pollution and in all our

mythologies good weather is a reward for virtue. Now take a look at the Song of Solomon: 'For low the winter is passed, the rains are over and gone, the flowers have sprung on the earth, the time of the singing of birds is here'. The spring was his reward for virtue, and it's our reward for virtue this wonderful weather that we are now getting. Of course, it's a sort of picture of Dorian Gray situation. We have this eternal sunshine and youthful spring all around us, whereas it's other people on whom our pollution is being visited. I don't need to remind you of what's happening in Bangladesh and what's happening in the Horn of Africa and the expansion of drought zones, the more frequent repetition of droughts and floods and all the terrible effects which are already being visited on millions of people around the world but very seldom on us or, if they are visited on us, the degree is very small by comparison to the degree of visitation on other people. Indeed there seems to be, and this is one of the great ironies of climate change, an inverse relationship between people's responsibility for the problem and the degree to which that problem comes and gets them. At the moment. During this crucial phase when we could do something about it, climate change has been kind to us even as it has been cruel to the invisible people who aren't responsible for the problem and so we project that kindness, we project that idea, of life actually getting better as a result of climate change. You have people, not so often nowadays, but I remember John Mortimer a few years ago writing about what a wonderful thing climate change would be because we would have a climate like Bordeaux and we could all grow our own wine and what a wonderful world that would be. A lot of people think like that and in fact I sometimes catch myself thinking like that.

### **Economics**

But that's not the only problem of perception. There are other problems which are very much more culturally linked and not quite so purely psychological but they have a very strong cultural input and if we were to look, for instance, at our understanding, our absorbed understanding, of economics which almost everybody in this country possesses we find ourselves led into similar misperceptions and find it similarly difficult to escape from the notions which are, effectively at the moment, condemning us to push ourselves further and further into this problem.

All modern economics whether informed by Marx or by Keynes or by Hayek or by just about anyone except a handful of green economists, and I am glad to see at least one in the audience this evening, all those mainstream economics are informed by the idea that human welfare will be delivered by continued economic growth. That idea is absolutely fundamental whether you are a Marxist and you believe in the free development of all providing the condition for the free development of each, or whether you are a follower of Adam Smith who believes that a man by pursuing his own interests promotes the interest of society more effectually than if he had intended to do so. Whatever your economic position, unless you are a green economist, and unless you realise that that the fundamental, physical and biological fact of the world is finitude, all those economics tell us that we just keep growing and keep growing and everyone will be the happier and the better for it. This is one of the absolutely fundamental problems driving this issue of climate change.

Now, when you look at the actual physical constraints that we are under, our economists are exposed as utopian fantasists, as the leaders of a millenarian cult as mad as and far more dangerous than any religious fundamentalism. Take a look at capitalism. The whole basis of capitalism is lending money at interest and on a daily basis this is what

we do, we lend money at interest. If you lend money at interest you have to increase your money supply everyday that that system persists because you have to provide the money which allows the debts plus the interest to be paid off. If that money supply increase is not to be inflationary it has to be met by real economic growth which means real trading goods and services and all the rest of it. If that growth is to falter or to stop or to go into reverse, the system falls apart. In the long run, that growth must continue and must keep continuing.

A very obvious analogy springs to mind instantly, you realise the whole scheme is one gigantic pyramid scheme. The whole thing is a means of securing growth now by means of unsecured loans from the future. That is exactly what a pyramid scheme is and as soon as you realise that the future is not infinite because the possibility of unsecured loans from the future is not infinite because our planetary systems are finite, you realise that that system eventually has got to come tumbling down with the most monumental crash. Yet no-one in the heart of political life, none of our most prominent public figures, whether economists or political leaders, will accept and acknowledge that.

### **Progress**

But actually the problem goes much, much deeper than mere economics. It goes to the heart of the Judaeo-Christian world view, the heart of the world view which informs our entire perspective on what it means in these societies to be human. It challenges the very notion of progress. Now, progress is not something you are born with, you are not born with the expectation of progress. Progress is something learnt, something learnt at a very deep level, something which has seeped right into the fibre of our being. The great majority of belief systems don't have a notion of progress like we do. If you look for instance at most animist religions and at Buddhism and Hinduism what you see is a cyclical history, a view of death followed by rebirth followed by death followed by rebirth. You don't have a sense of movement towards a denouement. But if you look at the Judaeo-Christian religions there is a very, very strong sense indeed that we are going somewhere, we are heading somewhere, that what we are heading towards is a second-coming, resurrection, eternal life or, if you're Jewish, the first-coming, resurrection, eternal life. We are heading towards, we are progressing towards, a moment of transformation. Personal transformation as we are lifted up from the dead and into heaven or somewhere else, and global transformation as the 300,000 horsemen with breast plates of sapphire and heads of locusts come and reap destruction upon everybody who isn't a true believer. This is a very peculiar belief system but it's not entirely the preserve of Judaeo-Christians. The Egyptians had something a little bit like it but it's not a common belief system to have something like this in different parts of the world. I think it comes from a particular conjunction of circumstances.

The Bible and indeed Judaism and Christianity are effectively the creation of recently settled nomads. They were people who were monotheist, as most nomads are because they don't have their home gods, their 'lares et penates', they don't have their particular gods of rocks and trees and hearths and all the rest of it because they don't stay in one place. They have an overarching single god, one sky, one god. But then, and you can follow this through the Old Testament, they quickly, within the actual Pentateuch, capture the fertile lands on which stable settled agriculture is possible. They capture it during the Bronze Age at which we have a great agricultural transformation taking place with the ability, through technological change, to grow much more food, to store much more food, and to store it much more securely than before. Suddenly, unlike almost any

people who have gone before, they are no longer subject to the instantaneous whims of nature. They are no longer subject to this endless cycle of glut followed by famine followed by glut followed by famine to which almost everybody else had been subjected to since the beginning of time. They no longer had to see history as a cycle of hubris followed by nemesis. They no longer had to see history as a cyclical process at all. They could begin to see history as something else, something cumulative and progressive. As soon as you start to see your own existence as being cumulative and progressive, and again this is the multiplication of the moment that I was talking about, you instantly ask the question, "Well, where is it progressing to? It must be going somewhere." If you look at the Bible with ecological eyes, and I tend to look at everything with ecological eyes, it seems very clear to me that the myth of the fall is the myth of mankind's subjection to biological realities. The hunter-gatherers in the garden of Eden exceeded the carrying capacity and basically had to leave off the hunter-gathering lifestyle. How do we know that? Because their first progeny are Abel, a herder of beasts, a nomad, and Cain, a tiller of the ground. Of course, the nomads are the good guys which made Cain automatically the bad guy because it was the nomads who wrote the Bible.

What then you have is a gun hanging on the wall in act one. Humankind is subjected to biological reality, material reality. It bites humankind, you get chucked out, expelled from the garden of Eden, that is the fall. The fall, as we know, is the necessary precondition for the resurrection. This is the gun in act one which must be used in act three. You get to the end and it is the story of the complete conquest of material reality, the complete victory over biology, not just being able to create God's kingdom but being able to defy death itself. To have eternal life. What more obvious, what more blatant defiance of biology can there possibly be than the notion of eternal life? And so the story of the Bible, in my view, is basically the progress from being subject to biological reality to conquering biological reality. And that is the story which has seeped into our entire world view in societies like our own. That is the story in which we place ourselves and that is the story which has informed that deep sub-consciousness which multiplies the moment in which we live.

To challenge that story is to challenge every single thing that we believe to be true. The moment you challenge it everything that was true becomes false. To challenge it is to destroy the hopes of Marxists and capitalists alike, to destroy the hopes of every child and every parent and every worker because it is to destroy that notion of progress which informs our entire world view. What it says to us is that it is not better to light a candle to curse the darkness, it says it is better to curse the darkness than to burn your house down.

### **Re-education**

So here we have a problem. Here we have, in my view, the definition of the uphill struggle which we now face. We have to persuade people that everything that was seen as good, human endeavour and its technological amplification, in fact is merely accelerating our rush to the brink. That this progress which is the thing that we worship above all other things, the thing which it is totally heretical to attack, this progress is in fact our destruction. It's this anthropocentric conceit, the idea that we must be going somewhere and we must be tremendously important, which makes it so difficult for us to grasp what climate change is doing to us. We love the idea of terrorism, we really do. I know that's another heretical idea but we really love the idea that someone is out to

get us because it makes us feel really important. If someone is trying to kill me then I must really count for something. They are out to get me, some man with a beard is going to come and get me because he sees my existence as an affront to his existence. That means I really do exist and I really do count for something. That's a tremendous story. It reinforces our idea of life as a struggle through good and evil, thickets of good and evil, working our way to some ultimate purpose. It reinforces the idea that we count for something, that we are important and that someone is looking out for us, even if that someone is Al Qaeda.

But the story of climate change is a story of yeast in a barrel, feeding and farting until it poisons itself with its own waste and that is the story which we just refuse to accept about ourselves. We refuse to accept that we are like any other creature, we refuse to accept that we are governed by biological and physical realities. For God's sake, we are human beings, we are important. The world, the universe, revolves around us. That is the story that we have to keep telling ourselves, we won't see it any other way. And so we turn to different gods. We turn now to technology. Science and its products are viewed very much by people today as God was viewed in the Middle Ages. Largely inscrutable but will deliver all good things in due course. We look to them as we once looked to divine providence. We imagine that those people out there somewhere in some ill-defined space, those scientists and technologists who must surely be working in our interests rather than those of any corporation or funding body, must really be doing it for our good because they are out there and it's the providence that we depend on. We assume that somehow they are going to build our way out of this problem. They are going to produce the wind turbines and the solar panels and the wave generators and whatever else cheaply enough and in sufficient quantities to make sure that the problem will get sorted out and we don't have to do anything at all, all will be coped with.

### **Alternative energy**

So let's take a look at the most optimistic projections. Let's imagine that somehow, magically, the entire economy was transformed from being a fossil-fuel based economy to one being run on alternative forms of power but without any change in the basic idea of economic growth. Let's take, for instance, to start off with the idea of wind power. Now, as you may know, there is a public consultation taking place at the moment in Cumbria for what would be, if it were in existence today, the biggest wind farm in Europe. Twenty-seven very large turbines in a place called Winash which will provide enough electricity, according to the developers, to power 47,000 homes. They will save, apparently, 178,000 tonnes of carbon dioxide a year and it sounds very impressive. That is, until you realise that a single jumbo jet flying between Heathrow and Miami on a daily basis creates 520,000 tonnes of carbon dioxide, the equivalent of three of those giant wind farms. A single jumbo jet, a single connection between Heathrow and Miami, is the equivalent in carbon terms of three giant wind farms.

We hear plenty of environmentalists, plenty of people who see themselves as being in the same camp as me, calling for a hydrogen fuel revolution. We are going to have all our vehicles running on hydrogen fuel cells and those cells are going to be powered by electricity from alternative power like wind farms. They appear to have absolutely no idea of the implications of what they are calling for. The rough calculation, and I have now found figures from the UK but in both the UK and the US, appears to be that you would need a doubling of the national grid just to keep our cars on the road. That would mean a 600-fold increase in electricity produced from wind in this country if we are

going to power our cars from wind. And that means, quite aside from anything else, covering the entire land surface, plus some, with wind turbines to keep our cars on the road. Realistic prospect? I don't think so. What we are looking at here is that alternative energy is subject to exactly the same material realities as fossil fuel. And if we don't grasp those material realities we simply haven't understood what we are up against. If you don't like hydrogen, then there's biodiesel. That's what everyone is now calling for, biodiesel. We are going to fire up our cars on biodiesel. Well that's just great while you are in the minority and there's enough used chip fat to go around, that's terrific, and I support it, and you should put used chip fat in your car. But as soon as you start growing crops specifically for bio fuel you run into another problem and this is creating a direct competition between feeding cars and feeding people. People dispute this but lets take another look at the figures.

If we were to produce this diesel from the most prolific oil crop which can be grown in Britain, rapeseed oil, we would require 25.7 million hectares of arable land in which to grow it which is fine and dandy except that there is only 5.7 million hectares of it in the UK. We'd need four and a half times as much arable land as we actually possess. In fact, even to meet the EU's target of 20% of our vehicle transport fuel coming from bio diesel by 2020 we would need to cover the entire arable surface in the UK with rape purely for that purpose. If this is rolled out around the world, as many people call for, we would have the perfect formula for global starvation. Well you'd say that's ridiculous, of course they wouldn't feed cars before feeding people. Well yes they would. When you look at livestock, we've seen a quintupling in the number of livestock on this planet since 1950. It's risen by five times. They now consume more grain than human beings do. This isn't meeting fundamental human needs, this is making us fatter, but because we have more purchasing power than people who are more at risk of starvation, the food goes to our cattle, pigs and chickens rather than going to the people who need it. Even while we have a quintupling of livestock we still have 840 million people at permanent risk of starvation. If we were to roll out a massive global bio fuel programme of the sort which many people are calling for, and if it were to be sufficient to have a serious impact on climate change, it would also be sufficient to cause a global humanitarian disaster. These are the sort of material realities I want you to connect with.

### **Nuclear power**

Or we could turn, as many people are calling for now, including some environmentalists, Jim Lovelock among them, well he's always called for it but the media likes to create the impression that he's had some great conversion, to nuclear power instead. It certainly produces far fewer carbon emissions than fossil fuel burning does but there are one or two other problems.

It may no longer be true that there is no safe means of disposing of nuclear waste. I read a technical report by Posiva, the Finnish nuclear waste authority, I hasten to add not in Finnish, just about as indecipherable though! As far as I could work out, they do seem possibly to have cracked it. They've got this very complicated procedure where they stick it in cast iron and then stick the cast iron in copper and they drop it down a hole and backfill it with bentonite, which is a form of clay, and it appears to be good for at least a million years. So it could work but it is a staggeringly expensive process. Every single fuel rod will cost millions and millions to bury. And so what we will see is governments all over the world continuing to do exactly as they do in this country which is cutting every corner they can get away with.

At Sellafield, there's been plutonium sitting in a series of ponds since the 1970s with nothing being done about it whatsoever. At Doonray, they were dumping all their nuclear waste into two holes they had drilled into the cliffs with no record of what they put down there. In 1977, one of those shafts exploded, scattering hot particles all over the surrounding beaches and for 18 years they told no-one. Children were playing on those beaches for 18 years and then suddenly a bunch of blokes in moon suits and enormous clumpy boots turn up to take them away. That's the sort of thing that happens even in rich nations so when people are calling for all the poor nations to start developing massive nuclear plants, well, I think you can guess what sort of consequences we're going to see.

There's a further problem which is that the link between nuclear power and nuclear weapons is like the link between bread and a sandwich, making one is a very short step from making the other. If you want to enrich uranium hexafluoride sufficiently to make it weapons grade uranium you just pass it through the centrifuges a few more times. It's the same process as you use for processing uranium for nuclear power, you produce instead weapons quality uranium. This is what's been going on in Iran. The more you spread nuclear power, the more you spread nuclear weapons. All the countries which since the non-proliferation treaty being re-negotiated, ie trashed, by the Americans in New York right now, all the countries which have acquired, or sort to acquire, nuclear weapons since that treaty was signed in 1953, Israel, South Africa, North Korea, Iraq under Saddam Hussein, India, Pakistan, they've all done so through their civil nuclear programmes. They've all done so, actually, through the nuclear non-proliferation treaty which through this whole ridiculous atoms for peace notion actually encourages the spread of those civil nuclear programmes as a reward for not developing nuclear weapons programmes, and by making use of the reward you then develop your nuclear weapons programmes. It's a completely insane system but that's the one we've got. The more you spread the technology, the more you spread the danger.

But there's a third problem which is even bigger than that. This is that the private sector will not invest in new nuclear plants and there are some very good reasons why, largely concerned with the liabilities. So, if we're going to have a new nuclear revolution as some people are now predicting following this election, the money's going to have to come from the government and it's going to have to be a heck of a lot of money, billions and billions of pounds. The government is not going to spend that money twice. It's either going to spend it on nuclear power or it's going to spend it on energy saving. The Rocky Mountain Institute in the United States shows that you get seven times the carbon savings from any \$1 spent on energy saving as you do from \$1 spent on nuclear power. So if we're looking at this limited resource of government funds and how they should be spent, it's absolutely clear that they should be spent on energy saving rather than on nuclear.

### **A transformation**

But of course energy saving is the thing which we, or our economies, just won't contemplate. What is acceptable to the markets and, therefore, to government and, therefore, because it filters through into our deep sub-consciousness which replicates the moment, what is acceptable to all of us is things which create new opportunities for capital in the form of new forms of energy generation.

And so we are faced with a very, very big problem and it's a problem which is incredibly hard for people to get their heads around. What climate change does is to challenge the whole ethical basis of society. Everything that was good before becomes bad. It's a good thing to fly to your friend's wedding in New York but what we understand now from climate change is that it's also a bad thing. It's a good thing to light the streets at night, it's also a bad thing. Everything that was good becomes bad, everything that was bad becomes good. It requires a massive reversal of our world view. It requires an acknowledgement that if we in the rich world carry on the way we are, and this is another profoundly heretical thing to say which people absolutely hate me saying but as a result I shall say it, if we carry on the way we are every one of us, however well-intentioned we are, however meek and mild we are, will be responsible, in terms of humanitarian suffering, for the equivalent of a medium-sized act of terrorism. That's you, and that's you and that's you. It's every one of us individually who will be responsible for that because that will be the humanitarian impact of climate change. And we are the terrorists, we are the people who are most responsible for this, this really does stop primarily with us.

What we need to see is a transformation of the way in which we engage with the world, the sort of transformation which has only really happened in the sort of timescale that we need to think about in times of war. It happened more or less in the Second World War in Britain. It happened more or less immediately following the Bolshevik revolution in Russia. People just re-oriented their moral compass, they re-oriented the way they saw the world, not necessarily for better or for worse but a massive psychological shift. And it needs to happen with that same intensity and that same drama, and it needs to be done not by Tony Blair or by George Bush or by the scientists or the technologists or other delivering angels out there who don't really exist. It needs to be done by every single person in this room and you need to start doing this now. Nothing else really counts. If we don't sort out climate change, we don't sort out anything. We can just forget about all our other plans, we can forget about all our other ideas for making the world a better place, for making our own lives better lives, for making the lives of our children better lives. We can just forget about the whole thing, it doesn't matter, it doesn't count. If we're looking at six degrees climate change or possibly even more, nothing counts, human life comes to an end, end of story. It really is the end of story.

We are contemplating the closing of the climatic corridor which has allowed us in a very literal and physical way to progress, to evolve, to exist on the earth, to progress through time if not by any other means but to be, to walk down that corridor. And it's not someone else out there who is closing it, it is you and me who are closing it by our daily activities. It's not some contemplated evil that is closing it, it is things which we have hitherto regarded as good. And I must urge you to really put aside your concerns about virtually anything else because this is the big one, this really, really is the big one and you are in the belly of the beast, and I'm not just talking about the Law Society, but in British society as a whole. This is the belly of the beast, this is the motor, the engine driving global climate change and the responsibility stops with us. We can talk perhaps in the discussion about what we should do but the overriding message I want to leave you with this evening is that we have to [act] and whatever conclusions we might come up with as to how to create this psychological revolution, and economic revolution and political revolution which is absolutely essential, I urge you to bear in mind that nothing exists at all unless that revolution takes place.