

Chelmsford Cathedral
The Keene Lectures 2008
Changing Climates
Lecture 1: The Moral Climate
Michael Northcott

The text of the lecture delivered by Professor Michael Northcott in Chelmsford
Cathedral on Wednesday November 5th 2008

And he shewed me a pure river of water of life, clear as crystal, proceeding out of the throne of God and of the Lamb. In the midst of the street of it, and on either side of the river, was there the tree of life, which bare twelve manner of fruits, and yielded her fruit every month: and the leaves of the tree were for the healing of the nations.

Revelation 22. 1 - 2

I was walking through Edinburgh's Botanic Gardens on Tuesday morning giving final shape to the thoughts I want to share with you tonight. The gardens are a cycle ride from my house along an old railway line. In pre-Beeching days suburban trains would have plied the route from the port of Leith through the Scotland Street Tunnel – made famous by Sandy McCall Smith's fictional *Philosophers' Club* – to Edinburgh's Waverley Station. Now the tracks are replaced with a tarmac bicycle path that is lined on both sides with silver birch, holly and ivy and shared by cyclists, dog-walkers, shoppers and commuters. I had intended to go to the library but the sun and the trees began to work their magic on me and I knew that the best place to get my thoughts together was not a windowless library but a garden, and so instead of turning left up into the New Town I turned right and along to the Botanic.

As I entered through the modern gates that are an artistic rendering of leaves in stainless steel the sky was a deep blue and the dew was still shimmering on the ground. The sun, still low in the sky at 10 in the morning at this time of year, was reflected off every blade of grass, and shining dappled through the trees. And the leaves of the myriad species of trees that the gardens have collected from all over the world since the dawn of the British Empire were turning every shade from light

green through speckled light browns to deep reds. Piles of leaves were already on the ground waiting to be deliciously kicked or thrown into the air by children and their parents on autumnal weekend forays. The most striking tree was a Canadian maple that was a deeper red than I can ever recollect having seen in Scotland before.

Leaves are magical things and without leaves there would be no life on earth. Before there were dinosaurs or dingoes, oystercatchers or ostriches, hippopotami or humans, there must have been leaves. For before there were leaves the earth had a carbon laden and often viciously hot atmosphere with insufficient oxygen for oxygen fuelled beings such as we. But the leaves did their great work, drawing great quantities of carbon dioxide from earth's primordial atmosphere and locking it into the branches and trunks of trees through the process of photosynthesis. And as generations of trees lived and died across millennia they utilised the light of the sun to lock carbon into the earth's surface. And so in the Creator's good time oxygen breathing animals were able to crawl out of the oceans, and then walk upright on the earth, appreciating what no eye had seen nor ear heard before, the glades and streams of the forests, the rustle of the wind in the leaves, and the light of the sun that make life possible.

And just as primordial trees did this before the dawn of mammalian life, and human history, so before every one of our dawns through the night leaves are working the magic of photosynthesis utilising the energy they receive from the light of the sun in the day time to carbon dioxide from the atmosphere into oxygen. And as they do so the trees grow and lay down annual growth rings on their trunks and branches that provide a living memory of the climate they enjoyed in the decades and centuries through which they perform their humble climatic service to their fellow creatures.

The shades of green, brown and red that enlighten the autumn in what Americans engagingly call the Fall – perhaps they drew the sting from the first Fall by naming one of every four seasons after it – are also a consequence of photosynthesis. But in the cold nights and days of autumn the leaves work a particular magic. The sugars that build up in the leaves in varying quantities – from the sugar laden maple to the bitter leaves of lime – are turned by the cold into the myriad colours that make this such a wonderful season in the temperate zones of the earth.

Global warming for us in Scotland has the upside that it is deepening the autumnal colours that draw visitors to the glens of Perthshire and the Borders in the autumn

days. Warmer wetter summers are good for tree and leaf growth. And the cold snaps of autumn that may intensify as Greenland's ice melt gradually reduces the warming effect of the Gulf Stream in the Northern oceans grow more sugar in the leaves and turn them deeper hues of brown and red in the climate changed autumns that lie ahead.

But climate change for people and species elsewhere in the world is having far from benign effects. These same atmospheric processes are causing ponds to form on Greenland in the summer, whose overflows lubricate the interface between ice and rock below ground and which has trebled the speed at which Greenland's glaciers proceed towards the arctic ocean. And these same processes have seen unprecedented sea ice loss in the Arctic region in the last two summers with scientists predicting an ice free summer Arctic by 2015. A deep blue Arctic ocean will absorb more heat from the sun than the white albedo of sea ice and this is already driving subarctic warming. And as the Arctic ocean absorbs more heat the whole region is warming up so that beetles in Alaska now infest tree bark across large areas and Inuit villages and towns are losing the secure ice sheet on which many of them were built. More troubling still is that the frozen tundra of Northern Canada, Alaska and Siberia is melting. Scientists this last summer found that the soils in Siberia are releasing significant amounts of methane. And methane is a greenhouse gas twenty times as powerful as CO₂ and evidence from past climate flips that the planet went through before the evolution of humans indicates that methane was often the crucial factor.

Warming oceans are troubling for another reason. In tropical climes they are causing droughts and floods on a scale that is bringing climate change misery to millions of the poorest people on earth who on average emit less than 1 ton per person of CO₂ compared to the 25 tons emitted by Singaporeans, Australians and North Americans or the 9 tons emitted by Britons and New Zealanders. The Sea Surface Temperature of the South Atlantic and Indian Oceans around Africa show a marked warming trend since the mid 1980s and scientific models correlate this warming with declining monsoon rains across the Sahel, and other parts of sub-Saharan Africa. This change is sufficient to reduce vegetation south of the Sahara and has therefore also contributed to an increased atmospheric aerosol of dust that has further reduced precipitation in the region. Drought in Ethiopia this winter threatens another food crisis in that climatically sensitive region and from Mali to Malawi farmers are contending with droughts that last longer and are more severe than any their long

cultural memories can recall.

Warming oceans also have the effect of strengthening tropical cyclones and hence the 500 million people who live around the great deltas of the Ganges and Brahmaputra rivers are every year exposed to stronger storm surges and flooding. And warmer temperatures in the Himalayas are also causing increased snow and ice melt in the glaciers that are the source of these rivers. In the short term this means more flooding and stronger river surges in the spring and summer seasons and I have seen the damage these surges can do to poor communities in Nepal – ripping through rope and steel bridges, destroying communication and supply lines in already remote communities. But in the longer term the threat is even greater as when these glaciers are gone the flow from these rivers that provide water to one quarter of humanity will be dramatically diminished.

Global warming is the unintended consequence of the industrial revolution that began with the invention of the steam engine that was first used to pump water out of deep coal mines. The coal and the engines fuelled new factories and furnaces that created the engine of wealth that has given the industrialised nations a level of comfort and technological power unprecedented in previous civilisations and still unknown for billions presently living on the planet. Chelmsford has a distinctive role in this fossil fuelled revolution since you have in this town the remnants of the first inland coal gas plant which heated and lit the town and fuelled its workshops and factories.

Since the industrial revolution we have burned our way through millions of tons of fossilised trees and shellfish that we call coal and oil. When they were in the earth's crust these ancient trees and fish performed an essential ecosystem service to us warm blooded mammals in locking excess carbon out of the atmosphere. In so doing they, and their maker, have provided us with a stable climate that has endured for more than 8,000 years since the last ice age. Human civilisations have unfolded since then a unique period of climate stability in the 500 million year history of life on earth. In all previous eras to what scientists call the Holocene the climate of the planet was yo-yoing from glacial freezes that saw icebergs in the tropical oceans to extreme heat that saw reptiles walking on Greenland and Antarctica. In the warmest times Essex and large parts of Southern England and the lowlands of Europe were under water. In the coldest times wolves and neandertals could have walked to France from here. This constant yo-yoing of the climate meant that humans were

unable to develop agriculture and the civilisational possibilities, and population growth, that agriculture made possible.

Our Jewish and Christian faith traditions have endured precisely because of this climate stability. Museums around the world have gathered and preserved artefacts from the ancient cultures of Babylon, Egypt, Mesopotamia and Persia among which the Hebrews lived and among these are physical evidences – such as the Moabite fragment in the Louve – that testify to much of Biblical history, and that would not have been preserved without climate stability. Similarly the papyri that preserve the ancient words of scripture would not be in places like the John Rylands library and the Vatican Museum without climate stability. We are not then just putting at risk our uniquely fragile globally interdependent civilisation by unsettling climate stability. We are also endangering the geophysical connections across time and space that have made our Christian faith an enduring one across two millennia.

But there is an even more profound reason why as Christians we ought to be deeply concerned with climate change, and to do all in our power to mitigate its effects on future generations. Millions of people around the world are already suffering from climate change related extremes of weather. This is the reason why Christian Aid, which is chaired by your Diocesan Bishop, John Gladwin, has set climate change mitigation centre stage in its policies and campaigning for the last two years. Some challenge the wisdom of this greening of the churches ecumenical aid agency. But the reason Christian Aid have done this is because their partner churches and NGOs are telling them that climate change is already threatening the lives of the poorest people on earth. Malaria, diarrhoea, lack of clean water, soils baked to the constituency of cement that cannot absorb the rain even when it does come are all growing problems in many parts of Africa because of climate change. Extremes of temperature are driving people into ever deeper poverty in the Northern States of India and in North Africa, while worsening annual storm surges in Bangladesh drown thousands of people every year and millions are left homeless. The worst single storm related loss of life this year took place in Burma, which thanks to its vicious and totalitarian government is one of the poorest places on earth and we may never know just how many lost their lives, and not just their homes, as a result of Cyclone Nargis. Closer to home 30,000 people lost their lives in the extreme heat of 2003. I was on holiday in France that year and flying to Nimes from Essex it seemed like the whole of France had been baked brown. (And yes I flew on holiday that year. As Bishop James Jones of Liverpool often says it is important when we talk about

climate change to confess at the outset that we are – many of us – hypocrites in this matter though I took the train here today). The summer of 2003 was an exceptional event but with a 2 degree warming of the planet summers like that will happen every year, and the recent explosion in fossil fuel use in the last twenty years is even now committing the planet to 2 degrees of warming.

The climate is presently heating at an average across its surface of 0.2 degrees a decade though this warming is much greater in some areas – and particularly in the Arctic – than in others. At this rate of warming we will hit 1 degree in 2015 and 2 degrees in 2065. As the planet reaches 1 degree we will see significant ecological as well as human impacts. Coral reefs which are already bleaching will likely die to around three quarters of their present extent and these reefs are crucial spots of biodiversity in the warmer oceans that are otherwise much barer of life than the cold oceans. We will also see significant droughts taking hold not only in Africa and parts of Asia but in the Western United States, Australia and Southern Europe. And the extent of these droughts may be so grave that large areas of soil may return to the dustbowl conditions that unwise farming practices created in the mid-West in the 1920s. With that kind of warming we will see climate change refugees not just from North Africa but from Southern Italy, Greece and Spain. There are already locusts in Spain and the South of France.

But with 2 degrees warming, which we are likely to see by 2060, 500 million people could be on the move away from heat stressed plains and flooded coastal cities. Presently 60 per cent of humanity lives within 20 miles of the coast but 2 degrees warming will see runaway ice melt in Greenland and the West Antarctic Ice Sheet and sea levels will begin to rise much faster than their present 2 mm a year. With 2 degrees warming many coastal cities and communities will be threatened by seasonal flooding and some low-lying areas, including here in Essex, will have to be given up to the rising oceans because the costs of keeping the sea at bay will be too great. But the most troubling thing about 2 degrees is what it may do to the oceans. These are the most effective carbon sinks soaking up just under half of the greenhouse gas emissions that our civilisation puts into the atmosphere every year. However the oceans are getting very acidic from soaking up all this excess carbon and the danger is that as the ph of the sea changes that the tiniest creatures – phytoplankton – that are like the leaves of the ocean drawing carbon into the ocean through photosynthesis will start to decline, and shell fish in more acidic water may not be able to form shells anymore

2 degrees will see many glaciers disappear altogether and with them water sources of hundreds of millions who live off the glacial melt of the Himalayas and the Andes. Two degrees will also likely extinguish one third of all species alive today since the rate of habitat change will make their continued existence impossible. One such threatened species in Britain is the Ptarmigan, the highland grouse that one can still encounter on Scottish mountains in the winter with its plumage turned white as camouflage against the snow. These birds cannot fly very far and like many species they will have nowhere else to go when their habitat warms beyond the temperature at which they can successfully reproduce and nurture their young.

Things get really scary at 3 degrees however. At 3 degrees it is likely that a vast global bubble of methane will be released from frozen tundra, and from the Southern oceans where cold heavy water currently locks it beneath the ocean floor. Even more worrying is what will likely happen to the tropical forests which even at their present rate of destruction remain the largest above ground carbon sinks and the largest sources of oxygen. Equally troubling, at 3 degrees the Amazon, and the forests of Borneo, Congo and Sumatra, will likely burn up and turn into a vast firestorm that could trigger a runaway global warming even. These forests cycle vast quantities of water as well as oxygen into the earth system and if the Amazon and other great tropical rivers begin to decline this could turn the tropics into infernos that would make El Nino driven fires, like those in 1997 that shrouded the whole of Southeast Asia in smoke and haze for months and caused a 20 per cent spike in global CO2 emissions that year, a regular event. The likelihood of these events occurring at or even in advance of 3 degrees is high because we are already seeing precursors of these events at less than 1 degree. Methane is already seeping out of the deep ocean trench East of South Georgia in the South Atlantic, and from Siberian soils, and in the summer of 2006 the Amazon dried to such an extent that many of its tributaries dried up and millions of fish just baked to death. Once the trees burn the billions of tons of the hundreds of feet thick peat dries out and this quantity of carbon would dwarf even the annual output of all our human climate changing machines and furnaces.

It is then absolutely imperative that we do all we can to stabilise the planet before it warms to 3 degrees. The science indicates that our only hope of doing that for certain – and of course nothing is absolutely certain in the prediction of consequences – is that the current annual growth in greenhouse gas emissions

becomes an annual decline from 2015. If emissions continue to rise beyond 2015 it will not just be more expensive to turn things around, but it may be geophysically impossible to restrain the runaway warming event to which a small minority of scientists believe we have already committed the earth system.

Of the historic emissions of greenhouse gases that are forcing the climate into a temperature change unprecedented in the last ten thousand years the UK is per person the largest contributor, closely followed by Canada, the United States and Germany. It is therefore entirely right that the House of Commons debated the third reading of the UK Climate Change bill which is the strongest law in any domain relating to greenhouse gas pollution.

The strength of the law was in large part due to citizen pressure. More than 100,000 people wrote to their MPs urging them to press the government to set the target for reduced greenhouse gas emissions by 2050 at 80 per cent, and to include aviation and shipping emissions – which are the largest source of annual growth in our emissions – in the countable reduction target. The debate was important and significant. It saw MPs from all sides of the house urging the government to take exemplary action that would set the pace for the rest of the world. However the climate change bill contains no strategy for achieving the target it sets for UK emissions reduction and nor does the recent UK government energy bill. As the conservative MP Gregory Baker pointed out in the debate on Tuesday

‘The big danger of the Bill is that people place too much emphasis on the targets and auditing mechanisms contained in it, which are then mistaken for policies that will deliver the transformation to a low-carbon economy that is imperative. We will not find them in the Energy Bill. A whole range of policies are sadly lacking from this Government’

And Joan Ruddock, the minister leading the debate, responded by expressing sympathy with what his point of view. And as other MPs observed in the debate the government may have committed the country to a distant emissions reduction target but in the short and medium term its other policy makers are committing the country to growing fossil fuel emissions with expanded airports, widened roads, more driving, more houses to heat and light, and new coal fired power stations. No one in the House, apart from a maverick Tory MP, raised the possibility that Britain might have to contemplate using less oil coal and gas in the years ahead if it is to have any

prospect of meeting the 80% reduction target by 2050.

I called this lecture, and my book, *The Moral Climate*, for two reasons. The first is because since Newton and the age of the machine physics and industrialism have trained modern humans to think of the earth as a machine that runs according to fixed laws that we humans cannot influence. And so although scientists as long ago as the end of the nineteenth century predicted that burning fossil fuels could increase the blanketing effect of the upper atmosphere, trapping more heat in the earth system and so warming the climate, industrialists, scientists, politicians and citizens have mostly refused to believe that we could do this. The present day consensus on global warming has only come about because of the extent of the evidence before our eyes that the earth's climate is daily growing less stable and annually growing warmer. But the ancients took a different view than we moderns of our relationship to the planet. The writers of Genesis believed that it was the wickedness and violence of men in the time before Noah that caused the glacial flood that inundated the area now known as the Black Sea. And the prophets Isaiah and Jeremiah harangued their fellow Israelites for neglecting divine law, and worshipping wealth and idols and suggested that it was this that had turned the once fertile plains of Israel into an agricultural disaster and at the same time brought the humiliation of occupation and exile on the once proud kingdoms of Israel and Judah:

Have you no fear of me, says the Lord,
will you not tremble before me,
who set the sand as bounds for the sea,
a limit it never can pass?
Its waves may heave and toss, but they are powerless;
roar as they may, they cannot pass.
But this people has a rebellious and defiant heart,
they have rebelled and gone their own way.
They did not say to themselves,
'Let us fear the Lord our God,
who gives us the rains of autumn
and spring showers in their turn,
who brings us unfailingly
fixed seasons of harvest.'
But your wrongdoing has upset nature's order,
and your sins have kept from you her kindly gifts

The prophetic reading of ecological breakdown points to an apparent conflict between the grand projects of the Hebrew monarchy, and the unequal society it spawned, and the fertility of the land, the welfare of the created order. The pride of kings had denuded valleys of great cedars for their massive building projects, and the wealthy grew richer while the poor went hungry. The land suffers and shares in

the alienation that human corruption produces:

Woe to those who add house to house and join field to field until everywhere belongs to them and they are the sole inhabitants of the land.

Yahweh Sabaoth has sworn this in my hearing,
`Many houses shall be brought to ruin, great and fine,
but left untenanted;
ten acres of vineyard will yield only one barrel,
ten bushel of seed will yield only one bushel'.ⁱ

The devastation of the land is not only seen as the judgement of a wrathful God however. It is also interpreted as the consequence of the human rebellion against the created order and wisdom of nature. Profligacy, waste, greed, injustice and idolatry are all sins which are contrary to the created order instituted by God, and so they undermine the goodness and harmony of that order:

See how Yahweh lays the earth waste,
makes it a desert, buckles its surface,
scatters its inhabitants,
priest and people alike, master and slave,
mistress and maid, seller and buyer,
lender and borrower, creditor and debtor.
Ravaged, ravaged the earth,
despoiled, despoiled,
as Yahweh has said.
The earth is mourning, withering,
the heavens are pining away with the earth.
The earth is defiled under its inhabitants feet,
for they have transgressed the law, violated the precept,
broken the everlasting covenant.
So a curse consumes the earth
and its inhabitants suffer their penalty,
that is why the inhabitants of the earth are burnt up,
and few men are left.ⁱⁱ

Through the gaian science of Lovelock we are rediscovering what the prophets once knew – that the earth and we are in a co-creaturely relationship and that when we neglect the beneficence of God's good earth and the prudential use of what God has granted to us, and subject nature too much to our devices and desires, we not only frustrate the capacity of our fellow creatures to give God praise. We also put at risk the very services that the earth renders us. The ancients believed that justice was cosmic, and not just societal, and that when humans neglect justice in their own affairs, and in their relations with the earth, that the earth itself will suffer and ultimately punish those who abandon the ways of justice. For the ancients the earth had a climate that responded to us as its most powerful moral agents. But Newton and Coal between them – as William Blake so prophetically envisaged – have turned our vision and use of earth into a secular and instrumental one. Morality for our civilisation is no longer set in the stars but instead is measured in an economic

calculus of benefits, costs and consequences. And so it is no matter that in our towns and cities we can hardly see them thanks to the waste light that our councils pour into the heavens (and what the street lights don't occlude the smoke of fires and fireworks no doubt will tonight).

But there is a second reason I called the book and this lecture a moral climate. Climate change is the gravest moral challenge ever faced by our industrial civilisation; graver than the threats of Nazism or communism, far graver than the threat of terrorism, far graver than the collapse of the banking system. What we are facing is the collapse of the earth system. But the economic signalling system of the banking system is almost completely insensitive to the burden of waste and resource extraction that it imposes on the earth system. And the equally grave problem is that the vast growth in the money supply and global trade that has tripled greenhouse gas emissions growth in the last twenty years has been accompanied by an economic and political ideology that has committed our society to a vision of human flourishing that is entirely materialistic and mechanistic, and deeply amoral.

This is the reason why most of the debate over the Climate Change bill concerned the distant target of greenhouse gas reduction rather than the ethics and practices that will enable citizens and communities in Britain to recover moral responsibility in their use of the heat of the sun. What we are currently doing is living off stored carbon and we need within fifty years to transit to from stored to available sunlight if we are not to commit future generations to a planet far less benign than the one we have known. To achieve the moral goal of equality of opportunity for future generations and distant peoples we have rapidly got to change our way of living now and in the present. This will require the committed actions and participation of billions of people in every home and organisation on the planet. This is not something that the mechanistic target driven culture of our economic politicians can achieve, any more than it has achieved higher quality education or better health care.

The most significant words for me in Barak Obama's speech at 5.00 a.m. Chicago time today in which he acknowledged that the American people had chosen him as their President elect were those that described the origins of his campaign. He noted that he did not begin with big money from big business but instead the funders and supporters of his campaign were ordinary people in working communities who had given dollars and cents in their millions to make his campaign the best funded in political history. Obama also observed that the gravest threat his administration

faces, after the economic downturn, is a planet in peril and thankfully there was no mention of the phony Bush and Blair 'war on terror'.

Obama cut his political teeth in Chicago as a community organiser, following the philosophy of Saul Alinski, building resilient self-help communities from the bottom up in poor black and white neighbourhoods in post-industrial Chicago. Alinski was a prophet of our times who believed that change had to come from the grassroots because only then could change be owned by the people and so produce enduring equity and justice. He believed that participation in politics was not something citizens do every four or five years in a voting booth but every day when they commit together to work for the welfare of their families and neighbourhoods. And evidence from Swiss cantons and Indonesian forests as well as the Chicago inner city shows that when people do participate in the government of their own affairs, and the management of their own forests and lands, they experience a greater sense of wellbeing.

(Archbishop George Carey, along with the Diocese of London, began supporting faith based citizens organising groups in this part of the country in the 1980s and today Citizens is a flourishing citizens movement that is active in the East End and in Essex, for example engaging government and the Olympic planners in the shape of housing and other facilities that are going into the vast investment in infrastructure that is taking place in preparation for the London Olympics.)

The governments of America and Europe are not however putting their faith in community organising as a way out of the climate change conundrum. Instead they have set up under the auspices of the Kyoto Protocol a range of carbon emissions trading instruments whereby heavy polluters can trade with light polluters permits which offset putative reductions in carbon in the developing world against ongoing pollution in the developed world. The UK has already outsourced a considerable quantity of its greenhouse gas emissions to China and India because so many of the goods and services that we consume here – and particularly the carbon intensive ones such as metal and plastics manufacturing – now take place there rather than here. It is only because of this outsourcing that the UK government can claim that we have reduced our greenhouse gas emissions in line with our commitment under the Kyoto Protocol to a 9 per cent reduction on 1990 levels by 2012. But the UK Climate Change bill does not just fail to address this outsourcing. It also allows the UK government to offset an indefinite proportion of our physical emissions in Britain

through the carbon trading mechanisms of the European Union Emissions Trading Scheme and the Clean Development Mechanism.

The neoliberal ideology and policies that the Reagan and Thatcher years bequeathed to us have in other words so infected the mind set of our politicians that faced with the gravest peril the planet has ever faced they propose that we turn it into a marketing opportunity. Instead of the precautionary principle – which would advise that we take our foot of the growth accelerator – and the polluter pays principle – which would require that the oil and electricity producers pay reparations to climate change victims – carbon trading has seen the British government hand out a billion pounds worth of pollution permits to oil and electricity companies for free while raising prices for end users.

This same ideology is the reason why Britain and America have uniquely devoted such large quantities of public money – almost a trillion dollars – to bailing out private banks, while they have invested a small fraction of this amount in renewable energy, energy conservation and carbon capture and storage.

The moral climate that the ideology of the ‘free’ market has engendered in our nation is one in which commitment to the common good is no longer a respectable goal for public policy or private lives. Instead each individual is called to act rationally in his or her own interests and by the magic of the market can selfishness be turned into increased welfare for all. This is why public servants find every day that they are devoted to form filling target driven mentality that also infects the climate change bill. Statistical targets are the public service analogy for the rule of price; the assumption is that without a target, and punitive measures for those who fail to meet it, public servants will not serve. And this is why so many of the public services have been outsourced to private companies who do not share the traditional ethic of public service. And so we have the sad situation where ministers in Whitehall imagine they can direct change by setting targets, and sending out regional civil servants to enforce them. And this is why the politics of New Labour has engendered so much cynicism and loss of hope in contemporary Britain. But we should not forget that its roots lie in the Thatcher years.

This mechanistic politics, like the mechanistic cosmology of Newton and the instrumentalism of coal fuelled industrialism, has committed us as a nation to an idolatrous simulacrum of political and social life that is also endangering the very

future of human life on earth. And so even when our government and parliament attempt to take the moral lead on an issue like climate change they cannot escape the disabling infection of the very monetary morass that is dragging the earth ever closer to irreversible climate change.

The Christian moral vision begins in the commandment to love God above all things and to love our neighbour as ourselves. Because we have loved mammon above God, and have vested our moral and political agency in mechanistic monetary instruments instead of in the moral agency of participatory communities, we are living in a morally hollowed out society in which few believe any more in the capacity of the many to act collectively for a great moral cause. At such times it may be that the Church, and people of faith, are called, even required, to lead and not to follow. And this is why it is heartening that from the beginning of the Conference of the Parties the Churches have been urging real and sacrificial cuts in carbon emissions and equity in the use of carbon sinks. This is why it is heartening also that people of faith are so active in efforts to resist the carbon hungry development projects of HMG; planned expansions of Heathrow and Stanstead, and the polluting and wasteful coal burning stations of Drax B and Kingsnorth.

The form of politics to which Christians are committed is uniquely shaped to the climate change conundrum because it is both international and intergenerational. Every Sunday we confess in the Creed that we believe in 'the communion of saints'. And that communion connects us with Christians in Africa and Asia who are already suffering from climate change and it connects us with future generations of Christians who will suffer even more sorely from the present build up of industrial gases in the atmosphere. And the form of politics to which Christians are committed is uniquely shaped to the climate change conundrum because it is uniquely equitable. Every member according to Saint Paul ought to be heard and to participate in the body of Christ, and the weaker members ought to be given honour and respect ahead of the stronger. This politics of weakness mirrors the way of the cross that Christ took on the royal road to resurrection. And the form of politics to which Christians are committed is uniquely shaped to the climate change conundrum because it is uniquely participative. Worship in Word and Sacrament involves the participation of every member – in hearing and responding to the word, in exchanging the piece, and in sharing the elements of bread and wine. The profound insight of Saint Paul, and of the Reformers, was that priestly worship – in the Jewish Temple or at an elite priestly Mass – could not be true worship because it was not participative – it did not engage

head, heart and hand in the way that early Christian worship did.

Liberalism and neoliberalism both promise that we can fashion a just society and collective welfare without the people sharing a conception of justice or acting for the common good. The government or the market – or some combination of the two – will siphon off some portion of collective goods to conserve a minimal common life while private companies and individuals are free to pursue their own interests without regard for the common.

But the climate system is a vast commons and our fossil fuelled civilisation commits everyone of us to daily rituals that are continuing to lay waste to this commons. Selling rights to carry on polluting it is not a Christian or a moral solution to this problem. Only by engaging the head heart and hands of every citizen and every community and every corporation in every nation can we hope to turn our civilisation from its collision course with the carbon sinks of the earth.

There is one ray of hope for me in the climate change bill that at least indicates a chink in the target driven neoliberal culture that still infects our civil servants and politicians and this is the proposal that groups of people and businesses in particular neighbourhoods are to acquire rights under the bill to sell energy to the electricity grid. Currently our electricity production system wastes 70% of the heat energy that is contained in the coal oil and gas that fuels it. It is wasted in cooling towers, in transformers and in transmission lines long before it gets to our homes and offices. But under this new bill groups of people and organisations will be able to contract together to construct their own local generators which can provide both heat and power to local neighbourhoods so obviating the tremendous wastefulness – and personal irresponsibility – engendered by our current energy system.

I doubt if the Dean and Chapter of Chelmsford Cathedral have yet considered themselves as a potential catalyst of a power generating facility here in Chelmsford but it is precisely an organisation of the size of this cathedral that is envisaged as the catalyst for the kind of new devolved power system that the new act envisages. And just as it was in cathedrals such as this that the English reformers discussed and enacted the move of spiritual power back to the people in English liturgy – at which the Word was read and preached in the vernacular and the Eucharist participated in both kinds – might it not be in cathedrals such as this that the Church also leads the way to the energy reformation that our civilisation so urgently needs.

The gothic vision that inspired the builders of churches like this was inspired by trees. Its connection to trees is clearly visible in the simulacra of a forest in the stone columns of the nave, and in the arches that join like the upward reaching branches of trees, and in the leaves that decorate the roof. The tree is nothing without its leaves. It cannot transform sunlight into matter and invisible oxygen without their flimsy but multiple devotion to this task. The Bible and the Koran describe divine truth as analogous to trees and just as Adam and Eve are said to lead humanity and creation astray through an encounter with a tree, so the Book of Revelation envisages a restored earth as one in which the rivers flow unpolluted and unrestrained and the trees grow up to the heavens along its banks whose leaves are for the healing of the nations. Just as fossil fuels have fuelled wars for more than a hundred years so it could just be that a low carbon renewable future could bring about a new more peaceable form of civilisation by the mid twenty first century. And we are like the lives – everyone of us everyday is in relation to sunlight, as well as the Son of God. If we reconnect the sun with the Son, as the Celts did in their ancient Celtic crosses, we may find that reconciliation between our true flourishing and the earth system that the Resurrection of the Son of God promised in the paradise of God that it seemed to bring in for the first Christians.

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- i Isaiah 5. 8 - 10.
- ii Isaiah 24. 1 - 6.