Mediating Change; Culture and Climate Change

Futures: Climate Change, Culture and Time

Quentin Cooper

Hello, and thanks for doing something that five years ago would have been unusual and ten years ago would have been unthinkable – listening to a podcast. It's astounding, not only what the future keeps throwing at us but also how quickly we adapt and behave as if things had always been that way. So, has that speed of advance and adaptation applied to something as planet transforming and yet on a daily basis, intangible as climate change. For the last of these four discussions on different aspects of cultural responses to our changing climate our focus is on the future, our limited abilities to alter the shape of things to come and the almost limitless ability of those things to come to shape us.

Much talk about climate change is underpinned by projects and predictions of where we could and should be headed. Climate scientists have outlined a range of scenarios, from the odd degree rise and a change in the date the blossom comes out to rising seas, floods, droughts, wars over resources and species extinction, including some would argue our own. While many people understandably prefer the early blossom version of the future, non governmental organisations and many others tend to focus on the more frightening end of the spectrum. The only thing it seems almost everyone can agree on is that, to slightly misquote Sam Cook, an environmental change is going to come. So are we ready to make changes of our own to make sure us, the planet and its future can get along? There has already been plenty of big thinking and grand planning, including from the Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change, but these are largely strategies and agreements drawn up by science and policy specialists who pay limited attention to how society will interpret, implement and re-draft their ideas. For today, our emphasis is on the mediators of this science and policy – the artists, story tellers, politicians and journalists, and how they've responded and what influence they've had and may yet have on the public's ideas of the future.

With me at the National Theatre Studio in London are BBC environment analyst Roger Harrabin, who has been reporting on climate change since before most people put those two words together; Mike Hulme, Professor of climate change at the University of East Anglia and author of Why We Disagree About Climate Change; Ruth Little, writer, dramaturg and associate director at the climate change arts, science, education body, Cape Farewell; Oliver Morton, energy and environment editor for The Economist and author of Eating the Sun –

How Plants Power the Planet, and lastly, Dr. Carolyn Steel, architect and author of Hungry City.

Just a quick one to start with for everyone. This whole series of discussions has been on different aspects of cultural responses to climate change, but in what sense is climate science and policy itself also cultural? And Mike, I'm going to start with you, given that you've been involved with climate change throughout your professional life and probably had to deal with a lot of mediation and politicians.

Prof. Mike Hulme
Well undoubtedly it is cultural. Climate science has oriented itself towards the future. It is making claims of greater or lesser veracity about how the future might unfold and because the future almost by definition is a contested place, it's a contested concept. First of all it's going to become political, and as we very well know climate change has become deeply political, but also because the future is a place that we all live in in our imaginations it also becomes cultural in the sense that every single person on the planet has got a stake in the future and the way we think about the future, the way the future impacts back on us, how we connect to the future, our hopes and aspirations and fears. Climate change cannot escape from being both political and being cultural. Whatever the scientists may think they're doing they actually are invading that very contested place.

Quentin Cooper
Oliver Morton, is it a cultural invasion of the future?

Oliver Morton
Oh yes, and I think there's a feedback in which the cultural dimension takes off in its importance. It seems to me that at the moment the single most shared yet contested narrative about the future is indeed a narrative about climatic change, because it seems to be a naturalised narrative about stuff that's happening as it were almost independent of choice and yet at the same time choice is a very important part of the politics that feed in to it. I was at a climate change meeting a couple of months ago and I suddenly realised that maps of the world with different places coloured in different levels of red are currently the single most dominant graphic representation of the end of this century that we have. We don't have lovely illustrations of skyscrapers and zeppelins any more. What we have is maps of the world objectified and coloured different ways of red. That's you know a very important part of how we see the future.

Quentin Cooper
I suppose we used to have maps in different shades of red to indicate the size of the empire. It's a different –

Oliver Morton
Indeed – a somewhat more backward look -

Quentin Cooper
Ruth Little –

Dr. Ruth Little
I mean, I agree with everything that's being said. I think science like art is a way of knowing and all ways of knowing are culturally mediated. I like the definition of culture that the anthropologist Clifford Geertz gave some years ago which is that 'Man is an animal suspended in webs of significance, which he himself has spun.' And I think that science and the way of knowing that science provides is as much culturally influenced and influencing as art itself, though communicated very differently which is of course one of the big issues that we are now confronting in relation to climate change. So culture is a kind of patterned practice and we are all participants in it. Scientists too, are members of society and have the same roles and responsibilities that the rest of us have in both engaging in and communicating potential futures for us.

Quentin Cooper
Carolyn Steel - those webs of course include society. They include our cities, but are we navigating those webs or are we getting stuck in those webs?

Dr. Carolyn Steel
Well, I think this is very interesting because - I also agree with what the first three panellists have said - we can only see what we can see, and there's a whole branch of philosophy that deals with this problem, but essentially I think what's interesting about climate change is that this inconvenient truth is actually forcing us to re-think structures that have been quite comfortable in serving us quite well for roughly the last two and a half centuries. We've inherited a sort of series of structures, call it the Enlightenment, that has neatly split up the world and it's problems into disciplines that can be approached with great professionalism, etc. And actually what we are facing now is to many people extremely scary. It's a level of complexity and engagement that requires that we re-think the very structures of society. And that's interesting.

Quentin Cooper
Roger Harrabin, climate change is now to most of us a very familiar story, but you are one of the people who has helped make that familiar and also probably watched as that story has evolved over what twenty years of reporting.

Roger Harrabin

I think the key element here has been fear, because there have been many grand narratives that have interested the media and through the media and NGOs through to the general public and politicians. So before global warming came global cooling, came over population, came fears of resource shortage and all these touch on people's imagination of their future and their children's future. And I think it's really natural that people would be concerned about these huge challenges facing us as a planet. It's been interesting to me to see how climate change has evolved because unlike some of the other scares it is it has gained traction rather than lost it over the years. Climate change of course has been underpinned by this great mass of climate science, although now of course we are starting to see a loss of confidence in some of that science because of the business about Climategate, because of the mistake on the IPCC.

The other player in the cultural sphere in this, is business. Oliver and I were at the CBI Climate Change Summit yesterday and one of the CBI business leaders, a CEO, said to me afterwards 'We don't care what the sceptics are saying. As far as we're concerned this is a serious problem and we will keep driving it forward.' So, you have these different actors in society driving narratives forward at different paces, overlapping and feeding back into each other.

Quentin Cooper

When you are trying to get climate stories into the media, have you noticed a difficulty of climate fatigue? I mean, I certainly know from friends in the print media, sometimes they'll just go 'That story would have run three years ago. I can't run it now.'

Roger Harrabin

There is definite climate fatigue. Over the past twenty years I've monitored climate and the environment generally go up and down the news agenda in a sort of roller coaster and that's why I'm so uncertain about where it goes now. I've just been doing a documentary in which we interviewed Michael Jacobs, who was Gordon Brown's advisor in the Copenhagen Climate Summit. And he says 'Oh well, governments will really take climate change seriously you know, when climate change impacts upon them in a serious way.' Now when is that going to be, you know? Are we going to remain in a solar minimum? Are we going to go into a period of temporary cooling? What is going to happen with the level of warming with the planet? I have no idea. But certainly by the time it impacts enough on nations for them to really get worried about it then if the scientific account is correct then it is far, far too late. So his statement is not at all reassuring.

Quentin Cooper
Not reassuring in the sense he's thinking that it hasn't impacted yet. Oliver Morton, what's the pattern been at the Economist?

Oliver Morton
I think we need to look at that rather special sub set of fear that we talk of as the sublime. This idea that there is something frightening and yet there is something comforting about looking at the frightful thing because it's not actually proximate to you. You are saved by three floors of building above the flood, or whatever or however you want to see it. There is something in what something Mike's written about a bit as well in what's sometimes called 'climate porn', covers of newspapers saying 'Catastrophe! Six degrees warming!' and all that. There's a sense in which I think that fear is particularly actually counter productive because it's a way in which people externalise all sorts of other disaffections that they have with modernity, to say 'Oh look at this terrible thing we are all doing' and to transfer it out into an area, which they can condemn and worry about and have that frisson of fear, but not actually re mport into questions of, 'Well does this actually affect the way I live my life?'

Quentin Cooper
This is part of an essential thing, if you are talking about climate and climate futures you have to keep stepping beyond the facts. The facts will tell you where you are now but then you get into the possibility that they bring up for the future.

Oliver Morton
I think that's true and I think one of the things that's an important part of the debate, culturally and otherwise, is to extend that discussion of possibilities because we are still at a point in which many of the discussions of climate change and the politics of climate change and activism around the issue of climate change is about stopping it rather than about saying there is really no realistic way that the limits that have been talked about since the 1990's and by the EU, and then increasingly by the rest of the world, of limiting climate change to two degrees - pretty much no one I think I can go so far as to say - no one who is actually as it were in the business actually believes that this is a valid objective. And yet it is still seen. I mean most famously at Copenhagen, but still seen as the campaigning point that climate change is a future to avoid rather than a context for all the futures, good or ill, that we might go on to inhabit.

Quentin Cooper

Mike – is this also a problem for scientists? They're used to sort of saying, ‘Here's what we know.’ But when you're dealing with climate change you then have to go into ‘Here's what we think.’

Mike Hulme

Well it is a problem for scientists because it's - as soon as you start talking about the future you're leaving facts behind you and climate scientists have found this a very uncomfortable and difficult place to be in. And it's not surprising actually that we've seen different scientists position themselves in relation to these future narratives in different ways. So, we have someone like Jim Hanson who is a great scientist in the United States and has been working on this for thirty years or more. He will position himself in relation to future narratives in a very different place than someone like myself who has also worked for most of my career on climate change. So actually as soon as we start talking about climate change in the future, scientists, we do inevitably have to bring other personal commitments or cultural commitments or sets of values and ethics into play and this has been difficult. And of course what it does also do for science it exposes a vulnerability for people who wish to critique or criticise science and scientists. It actually creates that vulnerability because people can say ‘Oh, but these guys, they're not talking about facts any more. They're talking about theories or predictions or projections and –‘

Quentin Cooper

But scientists are also – some may disagree – but scientists are also human beings. If you think somebody is about to drive a car off a cliff, you don’t say ‘I think if you apply your foot to the brake pedal now at a certain rate you might slow us down.’ You might shout. You might yell. You might do whatever you need to do, going beyond the mere facts to get someone to change their behaviour.

Mike Hulme

But we don’t know there is a cliff. And it's also foggy –

Oliver Morton

And the brakes haven't been tested anyway -

Mike Hulme

Exactly so.

Quentin Cooper

And a part of this is the way that media and science interact, obfuscate the future. If you were so minded as a journalist, you could quote Mike as saying ‘We don’t know there is a cliff.’

Take that completely out of context and you've got Mike suddenly being a climate change sceptic.

Oliver

No, that's obviously true. I think one of the problems with the narrative also though is, you were talking about – Mike was talking about going beyond the facts - there's a way in which, partly because of a framing within things like Inconvenient Truth, there's been a framing of this as being primarily an observational question, whereas in fact there's a very strong framing theory underlying much of what it said. And so when someone says scientists can't say with certainty anything about the future, well scientists and other people can say pretty well that next July will be warmer than next January. What you can't say is how warm it will be. But that's actually – the idea which has been helped along by creationists - there is a lexicon out there of discussions of 'only a theory' as though theory is essentially a second rate and more culturally labile and weaker sort of thing than having lots of dates about when tulips come into flower. When in fact theory is actually extraordinarily powerful.

Quentin Cooper

What it is perceived as a weakness of science, but it's actually one of its great strengths that all theories are transitory. They are meant to be improved and adapted and changed.

Carolyn, is one of the things we need to do here to get away from this tendency to think about the future in Utopian and Dystopian terms, to find other ways to get our minds into that future?

Carolyn Steel

Yes. Well, I mean if you look at any set of human ideas it's always the one-liners that tend to get the most attention. It's much easier to sort of generate newspaper headlines and kind of big scary stories about one-liners that have short thinking ideas. And what I find interesting is that we've inherited a kind of polarised way of thinking really from the Ancient Greeks, I mean everything is presented as an either/or problem. And I really think what's required is a completely different way of thinking about problems, presenting them, arguing them. I mean it's absolutely ludicrous that Climategate has created an atmosphere in which the whole issue of climate change is put into question. You know, the idea that scientists are expected to know anything, any more than the rest of us. Why should they? I mean, why should we have certainty about the future when we don't even have certainty about the present or the past, you know.

Quentin Cooper

Ruth, does this same polarity tend to infect or characterise a lot of artistic responses in terms of stage and film and TV drama, that we tend to kind of want to present fantastic, shining, wonderful futures or deeply scary ones?

Ruth Little

Well we are far more likely to present the deeply scary ones because they are so much more interesting and I think that problem, as Carolyn says, goes back to the dualism in western philosophy and in monotheistic religion. We've got good or bad and there's not much in between. And I think that art has reflected that historically, but it has tended to err on the side of erring because that's where drama is and that's where tension is. If you have a protagonist who is evil he is more interesting and Milton knew that when the wrote Paradise Lost, and nobody really is particularly interested in the character of Christ in Paradise Lost because Satan is so much more interesting and you'd much rather hang out with him in the wilderness. So I think, we've got to accept that is a reality; that the way we -

Quentin Cooper

Are you saying that metaphorically we may all end up hanging out with Satan in the wilderness as a result of climate change?

Ruth Little

Well, we're already doing it now I think. Exactly. Exactly. Look, the science fiction writer William Gibson said that 'The future is already here. It's just not evenly distributed.' We don't really have to think too much about the future. We can look around us at the present and we can see this kind of dualism being played out in all of our imaginings of what we might become. And Emerson said 'What we are, only that can we see.' And I think the business of framing is really the quintessential problem, that one of the reasons we cannot get a grasp on climate and climate change, the condition of climate within which we live, is that we frame our understanding of it and that's limiting. It's habitual. It's ideological. It's culturally constructed. If we've got to have conversations, artistic and imaginative conversations about the future, we've got to start by becoming conscious, self conscious about what lens we are looking through. And that's the big problem I think, that we don't realise we don't see those lenses any more.

Quentin Cooper

Oliver, as I think Ruth has beautifully indicated here, climate change and the future of it is very simple to sum up but it's very complicated to engage with in terms of the details. You're Eating the Sun was rightly praised for linking the very big and the very small, for making connections. Is that one of the roles of good science writing here, to actually begin to give us the bigger picture and show the interconnectedness of all this.

Oliver Morton

Well I think that's in general a role for good science writing, though I'm not sure it's in any way a solution to what might be seen as a problem here. I don't think that a wider audience for better science writing is really the issue -

Quentin Cooper
You don't think a wider audience for science writing can help?

Oliver Morton
At the margin but I don't think what's – I didn't sort of walk around the halls of Copenhagen and think 'Damn, if only there were better science writers around here!' I mean, you know, I might have enjoyed myself more in the bars. But I think we need to consider in the historical context what a very strange notion of the future we are coming away from, in that you were talking about science fiction and science fiction in the earlier part of the Twentieth Century has various very optimistic traits to it, especially in the American pulps and I think this is to some extent because it's a literature of colonising the future and it's a literature that's produced by first generation and second generation immigrants in New York; the pulp science fiction that shapes our imaginations. But there is another part of the future, which is much more difficult, which is the future that comes with nuclear weapons because nuclear weapons make the future suddenly extraordinarily either/or. They make the future something which can depend on something that literally happens in three minutes – the three minute warning – so, you have this idea that the future is on one side the radical preservation of the present and we re-make the military industrial complex and we change our notions of executive power in order just to preserve the present or unimaginably bad. And that dominates our view of the future and we get into this whole notion of Utopias and catastrophes, or more to the point just the present versus being preserved, versus something horrid. And that's I think, that's the pre-history. That's the archaeology of some of the debate we are having now about how to forestall a future rather than how to navigate a future.

Quentin Cooper
Roger -

Roger Harrabin
Yes, I'd like to say that I agree that the nuclear debate has helped frame the debate about climate change, but also there are some more fundamental things here about the way we like to tell stories, and particularly in the broadcast media, and particularly in radio, we like to tell stories to take on ideas and topics through debate, and debate involves a natural, inevitable oppositionalism. And so what we appear to have constructed in climate change is a bunch of people who say 'I'm really worried about the future. I'm really worried about climate change.' A small group of people who say 'I don't give a damn. It's not going to happen. Humans can't change the planet.' And quite a lot of people in the middle who say 'Well actually, I don't

know. I hear these competing voices and I don't know.' Now, there is another potential narrative that could have grown through, which is actually there is massive consensus that humans have changed the planet already and will almost certainly change it some more. There is not a great deal of consensus about quite how future climate change will impact and what emission scenarios are tied to temperature outcomes and at the extreme end those scenarios are extremely scary and at the narrow end they are probably quite simple to cope with. And we don't know which we are going to end up with and that becomes more of a narrative of risk and risk avoidance and takes you into politics. But somehow we have failed to tell that, really, I mean it's not taken very long for me to tell it but somehow over the years those of us in the media have failed properly to inform people, I think, about this issue because we're constantly pulled into 'Oh, we've got to have somebody saying something completely different.'

Quentin Cooper
Is there no change to that journalistic climate, because there is a realisation – it's not the first time I've heard this theory - that we have these false extremes that are presented to the public just to engineer conflict.

Roger Harrabin
I think there is a real problem now, that following Climategate – I mean Climategate actually I think was a real problem for the public consciousness. It seemed like something dodgy had gone on. Now I've looked very deeply into Climategate and I can't find any smoking gun at all. But I've also followed the enquiries into Climategate and quite frankly in my view they were all inadequate. And so if you were looking on from the outside, from a suspicious viewpoint you would be continuing to say 'There is a scam. They are cheating us. The enquiries haven't looked into the issue properly' – because they haven't. And it allows this continual erosion to come, of what you might call a middle ground position. And I think I'm talking about, you know, the ways things are represented. Politicians also fall into the same trap. Chris Huhne, at this CBI meeting talked about climate change for the first time I'd heard, in terms of risk and probability and insurance and what have you. Typically, until now they've talked about climate change in terms of catastrophe. So, we may be starting to see a different narrative. But I'm not sure about it.

Mike Hulme
I mean, across a number of different levels, I think getting away from the metaphor of polarities or linear flows and replacing it with the metaphor of circularity actually would help at a number of levels here. Because, we know in science there's been the linear model of how science should feed into policy. We know in terms of science communication we have had the linear model of how science should be deposited in the minds of our citizens. But, if we've

displaced those ways of metaphorically thinking with notions of circularity then it actually allows different frames to emerge.

Quentin Cooper

You mentioned various models there. The one that you didn't mention which perhaps you ought to just briefly touch on is the deficit model, the idea that simply, if you can just get the right facts to people suddenly a light bulb, probably a low energy light bulb, will light up above their head and they will go 'Of course! Now I see the problem.' It's done. Is that genuinely useful or is it more important to get change without understanding or understanding without change?

Mike Hulme

Well I think too much communication around climate change has explicitly or implicitly followed that deficit model and actually quite a lot of scientists, climate scientists, still think in terms of the deficit model: if only we can have greater clarity, more access to the public, better science writers, then we will bring these recalcitrant and unruly people to book. We see plenty of evidence still that the climate scientists think in terms of this linear flow and that we are the ones with this truth, the prophets who can actually see the future and it's these people that we have to convince. And that is a deeply unhelpful way in which science is brought in to public and political discussion. And I think this metaphor of circularity, plurality, multiplicity, multi-vocality, is a much more engaging one. And actually it gives us many more resources as a society or as a global collection as a society, it gives us many more resources to work with creatively.

Ruth Little

Exactly. I mean this is the thing that I am interested in now, that art in cultural forms of expression and self expression can communicate an 'art of living' which contextualises our behaviour within the much broader frame of natural systems, living systems. And when Mike talks about developing new metaphors I'm absolutely in agreement with that and I think that has to happen at every level of cultural engagement. We desperately need to develop and articulate and communicate and find both physical and symbolic structures for these new metaphors and circularity is a fantastic one because it's so closely tied in with living systems and seasons and cycles that are already in existence. I'm also interested in all the metaphors that chaos and complexity theory provide for us: the metaphors around, from living beyond equilibrium, movement between order and disorder; everything that renders complex the nature of our engagement with the world and proves that we are contingent in everything we do; places us in an environment so that our actions aren't just single actions but they are actions towards or actions in alliance with. And so I think that we have framed the climate narrative as a negative one, of having to stop doing something and I'm much more interested in the possibilities of action in different contexts, in more complex contexts where single

actions can generate unknowable and unpredictable outcomes but they will generate outcomes, so action is worth taking.

Quentin Cooper
When we project into the future and when cultural responses help us project into the future isn't there a tendency for us to imagine the future as much like the present, but you know with hover boards, i.e. subtly different, rather than the idea that there might be some kind of tipping point, some kind of dramatic change which could be where we suddenly are facing a very different world and that is one of the many scenarios that we can get from climate change.

Oliver Morton
Tipping points feel very frequently like a rhetorical stepping up of having lost the previous argument. It feels like, from someone who is not invested on either side of the argument, you say 'There will be warming.' Other people will say 'It won't be so bad.' And you say 'Ah ha, there might be a tipping point.' So whether or not there is a tipping point, you do run into this problem that that is very much rhetorically how it feels.

Roger Harrabin
There is plenty of imaginative science that tries to look into the future and think of what might be. They may happen or they may not. Actually, what we do know, I would argue much more convincingly, is that changes in technology, change in social organisation, change in political orientation are inevitably going to bring about very dramatic and sometimes abrupt changes in the future, unless you somehow think that the present social technological political state that we are in is solidified and will not change for the next hundred years. And this again is where some of the climate science I think gets it badly wrong. It seems to think that climate will unfold on a basically static planet and humanity. And so if we are thinking about these non linear or abrupt or dramatic changes we should be thinking imaginatively about what may happen through social organisation, technology and politics. The collapse of the Soviet Union, the introduction of the Internet, the ability that we now have to start manipulating our own genetic structures. I mean those are dramatic, non linear interventions in the world. Just as important, I would suggest, as a hypothetical or putative tipping point that may happen to the Amazon Rainforest in fifty years time.

Ruth Little
Don't they have a greater impact on us because things like genetic engineering threaten our notion of the integrity of our bodies? I mean, this is where I think that climate becomes real, is when - and it's the only kind of tipping point that really registers with me - is when there's a threat from disaster, disease or death to the human body, to the inviolable human body. And that's when we start to acknowledge that we are endangered. And until disease comes to us – when I was at a Tipping Point conference in New York last year one of the artists there said

there is no point in having poster campaigns with polar bears sliding off melting icebergs, you have got to have poster campaigns in America of little blonde haired, blue eyed children drowning in Michigan. And until you reframe the narrative and say it's your body and your life that's endangered, nobody is going to care less about what's happening because we are discounting distance and the future all the time.

Quentin Cooper
How is that drowning Michigan child campaign going though?

Can artistic responses though, truly help us prepare for some of these futures, open our mind to some of these possibilities of mitigation, adaptation, etc?

Ruth Little
Well I think they can and I think that they must, and I think that that's for me the reason to be engaged as an artist whatever that means. To be creatively engaged in the world is to engender and to support psychological potential for change and for evolution, for adaptation. And I think until knowledge is embodied, until it is actually embodied it's not received. It's not known. You can change people's behaviour through legislation. We've done it with seat belts and drink driving and all sorts of things. But again that's about threatening the body; it's easy for us to understand why we are being harangued into doing these things. But, it's much harder to make a change in our lives for futures that we can't predict and we can't control. But it's easier to do that, if psychologically and emotionally we feel that there is reason to do it. And I think that is where art and culture can communicate in ways that science hasn't been allowed to in the past, because of scientific methodology and the particular ethical considerations around how scientists communicate their findings. Artists can do it on a human scale directly.

Quentin Cooper
They have more liberty -

Ruth Little
They have more liberties. They can make quantum leaps in their thinking. They don't have to –

Quentin Cooper
Quantum leaps are very small and uncertain though -

Ruth Little
Yeah, but they shift the way that we understand the world don't they and where science has to do it through an accumulation of empirical evidence - and so I think art has a freedom of

movement and manoeuvre that science can't have and shouldn't have if it's to remain something that can be trusted in the public sphere.

Quentin Cooper
Yes, it's just Quantum leaps are an example of scientific language in the mainstream – it means the complete opposite of what it does in science.

Carolyn, do we need to have mental preparedness before we can have physical preparedness? Do these artistic responses make us more willing to do new things or are they – as we've heard in the past - just as at risk of paralysing us into doing nothing?

Carolyn Steel
I think what we need is mental openness and that's sort of the opposite of mental preparedness ironically –

Quentin Cooper
And can artistic responses help us with mental openness then?

Carolyn Steel
Well I think all of the things that Mike and Ruth have been talking about are absolutely key. I think what we need is a sense that we don't – the courage to say that we don't know, and this includes poor old scientists. I mean they get such a rough time. Why should one branch of humanity be expected to know all the answers? It's nonsense. We have to have a spirit of enquiry that we share. Absolutely we need each other. I mean I think one of the really key things here is to open up to one another, discipline to discipline, branch of society to branch of society, nation to nation and sort of say 'We don't know, but we need each other.' So it's a radical reforming of interdependence, mutual dependence. And it's very liberating to admit you don't know stuff. Not enough people do it.

I'm very interested in metaphor as a way of giving us sort of space to imagine new realities, that don't necessarily have to be signed off by Thursday and costed by the next week.

Quentin Cooper
Roger, your experience of dealing with the politicians and the leaders of industry and the people who actually may have a disproportionate influence on this, are cultural responses something that can actually change their minds perhaps more than a whole slew of journalism and articles and data?

Roger Harrabin

Of course everybody is culturally determined partly. But you have to remember now that all the companies have set their own culture in which climate change, low carbon economy, sustainability for some of them, has become a quite serious objective and I think it would be difficult for them to begin unpicking that culture. So that was what I was talking about before when there are these various over lapping processes in society. And that's why I think it will be – although I am not convinced about the way the climate change story will go - it's certainly far too early to write it off because there are so many powerful movers in society still pressing ahead with it. And also just to put it into context this is an international conversation and this great ferment of climate scepticism is a UK phenomenon and partly also in the US, Australia particularly and new Zealand, but for much of the rest of the world their original understanding of the science as we had generally a couple of years ago has not changed. So I think we should keep that perspective.

Quentin Cooper
Ruth, we seem to be getting an idea that all scales of intervention, all different directions, all different people have a part to play, but are some areas more effective than others in terms of cultural responses? Are you going to change more minds through a main-stream blockbuster movie or through an art-house -

Ruth Little
I was thinking about this last night, and thinking it's very hard, and that is part of the reason for these talks I think, to begin to map out the sorts of cultural responses to climate change that may or may not be producing an effective response. But there are three areas that I find very interesting and this is completely subjective response to it. One of them is, there is a cultural response to climate change which is largely elegiac and there is some absolutely beautiful and wonderful work coming out of that. The choreographer Siobhan Davies has made some fantastic pieces about imagining our future beyond the time when we have been able to continue to evolve and adapt, because we've evolved to a standstill technologically, as it were, and materially. Then, there is a fantastic campaign in New York, going back to polar bears, by Joshua Allen Harris who is a street artist, who has made a series of plastic bag polar bears which he puts over the gratings above the underground stations and when the trains goes past the air fills up the bag and the polar bear stands and comes to life and as the train disappears it falls in the most extraordinary, beautiful choreographed way and you watch the extinction of the animal on these New York subway gratings and it's a very, very powerful poetic, wordless way of envisaging the value of what we are losing. Then there is the kind of work that is, I think, immersive, which I find fascinating. There are so many artists working in this field - we are working with a lot of them in Scotland next year - who have got inside natural processes. They've stopped standing back. They're out of the galleries often – well not always – they've communicated with scientists, sometimes collaborated very closely with them. They are making new forms and articulating new experiences of our world, our lives

within the world. That art, I think, is very powerful because it shifts you psychologically and emotionally towards contextualised understanding of what it is to be human. And then thirdly, and the thing I think where perhaps there is the most hope of all, is the sort of, what I would call the Leonardo art, which is artists who are entirely trans-disciplinary in their approach and they've said 'No point in hanging around thinking of alternative futures. We've got to build them.' The example that I use is a metaphor that I want to carry with me everywhere, but it's also real. It's a company called Empowered Playgrounds, which works in Ghana. They harness the kinetic energy of children to generate electricity from playground equipment to power their classrooms with computers and lights. Again, it comes back to this idea of the 'art of living' and I like the idea of artists who willingly place themselves in the way of life in order to design, to use the design competencies of art to engage with real problems and real possibilities.

Quentin Cooper
Nearly out of time, but I think since we are talking about looking into the future it would be remiss of me not to ask one future gazing question of each of you. So, if we can look say ten, or if you prefer a hundred years into the future are you more optimistic or pessimistic in terms of our ability as a species to adapt and mitigate and postpone the effects of climate change, and are you optimistic or pessimistic about the part that culture and cultural responses will play? And I'll start with Carolyn.

Carolyn Steel
Well I think all of us in this room have to be optimists of a certain kind otherwise we just wouldn't show up. So, actually I've found that the more I move in the circles where people are dealing with these kinds of issues the more impressed I am actually by how much creativity, forward thinking and inventiveness and adaptability, and I would use the word love actually, oddly, because people really do want to do the right thing and do want to care. So, I have a lot of hope for humanity. I also have a sort of healthy kind of respect for, you know, the kind of degree to which people can sort of ignore problems until – I mean you know the famous thing of the cancer patient smoking in bed – so, I'm not optimistic for rapid, ahead of the wave change I'm afraid. I think it is only going to be the case, that people will only respond as Ruth says when they can sense it being their problem and their body that's at risk.

Quentin Cooper
Roger –

Roger Harrabin
Well, I'm not optimistic. I have noted that when I have asked environmentalists 'Are you optimistic?' they always reply 'I have to be optimistic'. In other words for themselves they have to be optimistic otherwise they couldn't continue. I'm a journalist and I don't feel the

need to be optimistic. We've just heard about life after the crash. I'm not convinced there will be a crash. And that's part of the problem. We can't know where there will be a crash or not. I'm very pessimistic about society, global society's ability to deal with a challenge with this amount of uncertainty and complexity.

But there is also a scenario in which the world gets one and a half and two-degree warming and actually a lot of places are greatly improved by that because the warming will come in the northern latitudes mainly. But I don't want to take either an optimistic or pessimistic position. I don't feel the need to. I'm not very sure whether it's helpful to throw your own human emotion into something of this nature. Maybe it is if you need to continue in a particular job, but I don't feel it's useful personally.

Quentin Cooper
That's good. Twenty years at the BBC removed all emotion! That's very impressive.

Professor Mike Hulme.

Prof. Mike Hulme
Oh well, I am optimistic. I think I am religiously disposed to be optimistic about the future, on a couple of conditions. One is that we overcome what actually quite polemically C P Snow described as the two cultures in which actually he elevated science and engineering and technology way about what you might call our cultural pursuits and our imaginative lives. We have got to get away from that type of hierarchy. If we can allow our creative and imaginative and cultural potentials to flourish at the same time as our scientific and innovative technological creativity to flourish, then I think I'm optimistic. And another reason to think of optimism is simply the sheer size of humanity on the planet. We have far more people alive today who are increasingly educated, exposed to a huge diversity of ideas and techniques and methods and that sheer size of humanity, if you think of it as a creative potential we are far more creative, potentially creative, than we have ever been on this planet before. And that suggests to me that we can find a whole variety and diversity of new ways of living on the planet. Climate change, as I've described, is the condition that we have to adjust to. It is simply the way the future is. It's not something to be stopped, to be controlled and therefore I am optimistic. And the other thing too, about these more scary scenarios about the future is the future never gets any closer. The future is always in the future. And this notion of shifting baselines I think is quite helpful, that we do incrementally, sometimes more rapidly, that we change our expectations of normality. The future is always out there to draw us forward and I therefore have an instinctive hope and optimism about humanity's future on the planet.

Quentin Cooper
Right, we need to see ourselves as a force of nature and be aware of what comes with that.

Ruth –

Ruth Little
I think we will continue to face enormous stresses in population, poverty, energy use, environmental degradation and climate. And those things aren't going to go away and they're going to remain inter-linked and continually mutually reinforcing one another. I don't have a lot of faith in the political process as it's currently established, again on party political lines and I don't have a lot of faith in the corporation to stifle the desire for profit and think about resilience rather than growth. But I think that people are thinking about those things, ordinary human beings who haven't sacrificed themselves for the sake of a corporate profit motive. I think we are thinking about resilience in new ways that stand and offer very promising opportunities to develop more diverse and sustainable societies.

Quentin Cooper
Finally, Oliver Morton -

Oliver Morton
I mean, I'm not sure about putting ones emotions into it. I'm not I think in my private life emotionally a particularly optimistic person. I am pretty optimistic about long term outcomes under climate but I'm very pessimistic about the path at which they're reached. I think there are very bad ways to get there and better ways to get there. There is a useful concept I think introduced by the Canadian thinker Tad Homer-Dixon, 'the ingenuity gap'; that there are solutions, but there is an ingenuity gap. And I'm very worried about the degree to which we are going to be able to minimise suffering specifically in the developing world as we overcome that ingenuity gap. But I'm also struck that in some of our closing remarks we've slightly moved back into the dichotomy we put aside at the beginning, of seeing culture and climate change as different. And I think one of the things I have taken from the discussion is very much that climate change is a cultural activity, a cultural focus, an 'imaginary' as sociologists say. That does worry me slightly. I would rather see our imagination expand beyond just climate, beyond the idea that the best thing we can think about beyond twenty one hundred is how red or otherwise bits of the map are and move more into the realm of a more generalised concern with human development.

Quentin Cooper
Oliver, thank you. And we will have to leave the future there, as predictably our time in the present has passed.

Huge thank you to our panel of prophets, forecasters and doom mongers. Roger Harrabin, Ruth Little, Carolyn Steel, Professor Mike Hulme and Oliver Morton.

And also to our hugely spontaneous audience here at the National Theatre studio in London and to yourselves wherever you may be listening. I also have to thank the Open University and the Ashden Trust for organising this as one of four Mediating Change discussions on the broader theme of cultural responses to climate change. This is the last of the quartet, chronologically and thematically, but each stands alone so should you wish to listen, the other three are on the history of such responses, how to categorise them and anatomise them and the role of popular culture in changing minds and behaviour. They should be lurking close to where you found this.

As the great physicist Niels Bohr said, 'Prediction is difficult, especially about the future.' So, be sure to come back and listen to this podcast again in 2020 or 2050 and see how we all did.