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Drowning islands: Climate change imperatives in the Asia-Pacific region

Abstract:

a) The researched topic

Climate change poses massive and varied challenges to the ways in which people live throughout the Asia-Pacific region. And despite the earnest requests of many of its most vulnerable peoples, emissions of greenhouse gases over the past few decades have made many climate-change impacts unavoidable, whatever action the world now takes to reduce these emissions. Emissions reductions and the clean energy initiatives that underpin them are still desirable since they will affect the world our descendants inherit in fifty or sixty years' time but within that period – at least – we have no choice but to adapt to the changes we have brought upon ourselves.

b) Creative response

A ficto-critical piece that seeks to represent the scientific 'reality' of 'drowning islands' / 'global warming' in narrative form through the eyes of a narrator and a Torres-Strait islander whose people fled the drowning island of Saibai in the 1940s. This piece includes song lyrics, Biblical verses, post-apocalyptic images of drowning islands, literary motifs, and a narrative scenario which serves as a microcosm of this impending crisis.

Biographical notes:

Dr Paul Williams is Discipline Leader of Creative Writing at the University of the Sunshine Coast, and the prize-winning author of memoir, fiction, non-fiction, short stories, textbooks and young adult fiction. *Soldier Blue* (2008) was South Africa's Book of the Year, and *The Secret of Old Mukiwa* won Young Adult fiction prize at the Zimbabwe International Book Fair (2002). His most recent book publications are *Playing with Words* (Macmillan, 2016), *Fail Brilliantly* (Familius, 2017), *The Art of Losing* (Bridgehouse, 2018) and *Novel Ideas* (Forthcoming, Macmillan 2019).

Patrick Nunn is Professor of Geography and Associate Director of the Sustainability Research Centre, University of the Sunshine Coast. He has worked for a number of years in climate change, mostly on sea level and on the challenges of effective adaptation in poorer countries. He has also worked on archaeological topics, usually through the lens of palaeoenvironment reconstruction, but also applying his geological training to ceramic mineralogy and radiocarbon chronology. Since 2000, when a coup

in Fiji interrupted a planned research programme, Professor Nunn became interested in myths as potential sources of information about geological hazards, particularly earthquakes and tsunamis, volcanic eruptions and abrupt coastal change.

Keywords:

Climate change – Pacific Islands – Adaptation

Provocation

Patrick Nunn

Climate change poses massive and varied challenges to the ways in which people live throughout the Asia-Pacific region. And despite the earnest requests of many of its most vulnerable peoples, emissions of greenhouse gases over the past few decades have made many climate-change impacts unavoidable, whatever action the world now takes to reduce these emissions. Emissions reductions and the clean energy initiatives that underpin them are still desirable since they will affect the world our descendants inherit in fifty or sixty years' time but within that period – at least – we have no choice but to adapt to the changes we have brought upon ourselves. No scientist today questions that 2°C of warming by the year 2100 is locked in, many think the world may be 4°C warmer by then, and that sea level will by then have risen a metre or more (Hansen and Stone 2016; New et al 2011).

Nearly ten million people occupy the Pacific Islands – thousands of inhabited islands organised into fifteen independent nations scattered across nearly one-third of our planet's surface. Most such people live in rural communities, only marginally within the cash economy, and almost entirely dependent for daily sustenance on foods obtained from local environments, marine and terrestrial. In many such coastal communities, garden lands and settlements have become more regularly flooded by seawater over the past few decades as sea level has risen by an average 3.2 mm/year – as much as 12 mm/year in some western Pacific Island groups like those in Micronesia and Solomon Islands. The coral reefs that fringe island shores have become generally less productive, as a result of higher sea-surface temperatures and a more acid ocean that bleaches corals and inhibits the growth of calcifying marine organisms. Climate change has increasingly stressed livelihoods of many Pacific Islanders over the past few decades and will almost certainly continue to do so in the foreseeable future.

To many outsiders, islands appear inherently vulnerable. To many raised on continents, the idea of people living on small dots of land within a vast ocean seems an innately tenuous form of existence; to learn that these dots are shrinking, their inhabitants' livelihoods threatened because of climate change, amplifies the perception of islands as vulnerable. From such roots was born the currently-dominant global narrative of islands as vulnerable, as being on the 'front line of climate change', as situated in 'disaster alley'. Such views ignore the important fact that many Pacific Island groups have been continuously occupied for more than three thousand years, their societies presumably developing high levels of resilience to external changes to island environments and food resources. Yet notions of indigenous resilience to future climate change are commonly sidelined in portrayals of 'islands as vulnerable', something understandably supported by many leaders of island countries which receive huge amounts of financial assistance to help adaptation and vulnerability reduction strategies (Farbotko and McGregor 2010; Barnett and Campbell 2010).

What island leaders say in international fora is often quite different to what island peoples say and think about climate change. People in rural Pacific Island communities, often unaware of climate change and not particularly in awe of 'western' scientific ideas, often seek to manage climate-change impacts through consideration of supposed

precedents (in space and time) which invariably leads to short-term responses. Many rural Pacific communities believe that the sea-level rise they have experienced over the past few decades will shortly be reversed, the ocean returning to a kind of unvarying norm (Lata and Nunn 2012). Many such communities, wholly spiritually engaged, understandably also view climate change through religious lenses, seeking their churches' direction on appropriate responses, sometimes favouring the power of prayer over direct adaptive actions (Nunn et al 2016).

Reconciling appropriate climate-change adaptation with such views is now a priority in the Pacific Islands. Three decades of trying to impose externally-designed secular solutions on Pacific peoples has produced little effective or sustainable adaptation to climate change, the challenge of which is becoming greater each year. Anticipating what is likely to happen and acting appropriately sooner rather than later will save a massive amount of human pain and financial hardship. The ways in which Pacific Island peoples and 'outsiders' view the challenges of climate change could hardly be more different. The future surely lies in marrying these views – carrying both parties struggling to the altar – and forcing union of history and experience with money and science.

This is not just a Pacific Islands issue. No country in the world is making sufficient preparations for the ways in which climate change will impact them over the next few decades. A mid-century sea level thirty centimetres higher than today may not sound much but its effect, especially during flood or storm events, on low-lying coastal lands from Staten Island to Stradbroke Island will be hugely disruptive, particularly for people who believe that wealth should insulate them effectively from anything that Nature throws at them (Seabrook 2016; Jacob 2015).

And that is the greatest current challenge. The science of climate change is robust, endorsed by an overwhelming majority of specialists in the field. The next decades may see some tinkering around the edges of projections, some perhaps even scaled up significantly, but by and large we know – as far as it is possible to know – that our descendants in 2100 will likely occupy a world that is 4°C warmer than the one we occupied a decade ago, and that the ocean surface may be a metre or more higher than today. So, our greatest challenge today is to convince decision-makers at every level, from government leaders to household heads, that things are changing at an unprecedented pace. And that we need to do more, especially in undeniably vulnerable locations like the coasts of Pacific Islands.

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Creative response:

[Untitled]

Paul Williams

I wake up sweating.

‘Another flood dream?’ she says.

‘This time it was New Orleans.’

‘We’ve never been to New Orleans.’

‘An imagined New Orleans. We were in Florida when the New Orleans levees burst, remember. Hurricane Katrina, was it? We watched it on TV. So I was there, sort of.’

‘You’re still shaking. Bad this time?’

‘It was so vivid. We were in a hotel in the French Quarter, and this wall of water hit us. The levees must have broken, I thought. The hotel clerk scrambled for the iron lattice that led onto the roof but was slammed into the building behind him and pushed up and out through the roof by this force of water. We ran but we couldn’t escape. The streets were canals funneling this brown fury and froth towards us. And then at this point, as we were about to be engulfed… I woke up. Was I shouting?’

‘I’m still trying to figure out why you dream of floods every night. You sure you don’t want to see my therapist?’

‘Your therapist would have something Freudian to say about it.’

‘She’s Jungian, not Freudian.’

‘Whatever.’

‘I did look up your obsession with drowning on the Jungian website. It means, simply, according to Jung, that you’re overwhelmed by emotions. Repressed issues may be coming back to haunt you.’

‘I think it’s more to do with what’s happening out there in the real world. It’s a shared nightmare. I’m not the only one. Watch the news every night. Harvey, Irma, Jose. Google “effects of global warming”. We’re on the verge of a cataclysmic flood.’

‘If you say so, Noah.’

‘And talking of Jung, you know he had a premonition of the coming world war in his dreams? Look what he said….’ I position the laptop on the bed so she can scroll down the screen.

I saw a monstrous flood covering all the northern and low-lying lands between the North Sea and the Alps. When it came up to Switzerland I saw that the mountains grew higher and higher to protect our country. I realized that a frightful catastrophe was in progress. I saw mighty yellow waves, the floating rubble of civilization, and the drowned bodies of uncounted thousands. Then the whole sea turned to blood. (Jung in Goldhammer 2003)

*

It's not just me. Every civilization has a flood story. It's in the submerged depths of our DNA, our collective unconscious.

My earliest memories are stories about floods. As an impressionable four year old, I listened wide-eyed to the story of the little Dutch boy who stuck his finger in a leak in the dyke to prevent low lying Holland from getting flooded. I imagined a country dug out below sea level, a wild ocean lapping on all sides and an earthen levee slowly eroding away, springing leaks.

'But why, Daddy, why would anyone live in a country below sea level?'

I was never sure whether to believe my dad. 'Europe is a very crowded place,' he told me. 'They had to reclaim land from the sea to make room.'

What he told me is true, it seems. Ninety percent of the city of Rotterdam lies below sea level. What are the Dutch doing about it? Instead of building a wall, they are embracing climate change, pioneering a singular way forward.

They will instead of trying to keep the sea out, to rather let it in. We cannot stop climate change, but we can adapt to it. So they propose to 'live with the water rather than struggle to defeat it' (Kimmelman 2017).

We can't just keep building higher levees, because we will end up living behind 10-meter walls. We need to give the rivers more places to flow. Protection against climate change is only as strong as the weakest link in the chain, and the chain in our case includes not just the big gates and dams at the sea but a whole philosophy of spatial planning, crisis management, children's education, online apps and public spaces. We must learn to live with water. (Kimmelman 2017)

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My father also told me stories of Atlantis, an entire mythical civilisation that sank in a catastrophic tidal wave in the Atlantic. Atlantis fired my imagination, fed by New Age ideas of a technologically and spiritually advanced civilisation that predated ours. In the Superman comics I read, Atlanteans learned to adapt by becoming mermaids, and breathing water. In Plato's Dialogues, they were a master race.

But afterwards there occurred violent earthquakes and floods; and in a single day and night of misfortune all your warlike men in a body sank into the earth, and the island of Atlantis in like manner disappeared in the depths of the sea. For which reason the sea in those parts is impassable and impenetrable, because there is a shoal of mud in the way; and this was caused by the subsidence of the island. (Plato qtd in Danalek 2003)

'Could our civilisation sink like this?' I asked my father.

'Morally,' he told me, 'it is sinking already.'

When I was nine, we visited Pompeii, I stood under the M shaped shadow of Mount Vesuvius and I saw first-hand what an eruption of natural forces could do to a highly evolved civilisation. Here was a freeze-frame of a flooded city submerged in hot lava.

We also visited Venice, which was, he told me, literally sinking into the Adriatic Sea.

But why, I asked again, would people build a city on water? We toured dank cellars lapping with blackness, and tour guides pointed to sub-aqua cellars already eaten submerged, and I stared at the futile attempts at walls and breakers and barriers erected to stop the unstoppable.

'This will be all under water by the year 2050, the way things are going,' said my father.

Was it any wonder that I began to dream of tidal waves engulfing me, of towering walls of lava or water in some immanent, capricious post-apocalypse?

*

I would sit wide-eyed in Sunday school and listen to the story of Noah's ark, quickly learning that the great flood which wiped out the whole of humankind was due to our own evil ways. God punished us by sending a flood. All through the Bible, floods were always God's way of punishing us:

A flood will sweep away their house, says the Bible. God's anger will descend on them in torrents (Job 20:28 New Living Translation).

Then from his mouth the serpent spewed water like a river, to overtake the woman and sweep her away with the torrent. But the earth helped the woman by opening its mouth and swallowing the river that the dragon had spewed out of his mouth (Revelation 12:15-6 New International Version).

In the Sunday Schools on the Pacific Islands, where preachers see the floods inundating the land, how is this interpreted? God is punishing us? For what? Maybe they speak not of Apocalypse, not of resignation to the predestined clichés of the Apocalypse, but of resistance, of action, of other ways of knowing.

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Disappearing islands. Sinking islands. Drowning islands. The images are relentless. On TV, we watch ice caps melt, glaciers shrink, ice shelves collapse. Yet there is a strong culture of denial too. I try to get into the heads of those who are not perturbed by these images of shrinking islands and submerged homes, and cannot.

Chaucer in The Canterbury Tales (1478) tells a story of a wily scholar who wants to sleep with an old carpenter's young wife and so persuades the old man that a second big flood is imminent. The carpenter must sit in a bucket suspended in the rafters of his house until the flood passes. Meanwhile, the scholar and wife can cavort safely in the carpenter's bed downstairs.

The carpenter is a cuckold and a fool for believing in a second flood, and we mock his gullible naiveté that the end times are nigh. Similarly, the modern day climate nay-sayers are adamant that they will not be fooled by such alarmist talk of sea rises and shrinking islands. We won't be fooled again.

There shall come down so furious a rain

Not half its force did Noah's flood contain.

This world," he said, "in less than one small hour

Shall all be drowned, so hideous the shower.

Mankind shall thus be drowned and lose all life." (Ecker 1993)

*

I grew up in Zimbabwe, a country which had its very own flood story too. In the 1950s, in order to provide hydro-electric power for the country, a dam was built on the Kariba River and a large area of low lying land was deliberately flooded. The local indigenous people (the Tonga) were forcibly removed, and thousands of animals caught in the floods and trapped on ever shrinking islands were rescued in what became Operation Noah.

I was mesmerised by images in the black and white movies of terrified elephants, giraffe, lions caught on shrinking land masses, of Msasa trees on tip toes reaching their top branches out of the rising waters.

Nightmares lapped at my mind every night, black water swirling in the cellars of my unconscious as the tip tops of metaphorical tree tops waved for help.

In the 1990s my nightmares were fed by Waterworld, a post-apocalyptic movie where the entire landmass of the world has been submerged in a global warming catastrophe and the wreckage of civilisation has to survive on rafts and the flotsam and jetsam of floating cities and islands built of the debris of the past (Costner 1995).

In the 2000s along came Hunger Games, the story of a repressive US regime ruthlessly controlling a world decimated by a similar global warming catastrophe, where a third of the landmass of the USA has been swallowed by the rising tide, namely the whole of the Pacific North West, Florida and the East coast, leaving only Panem, a truncated middle America to live on bread and circuses (Collins 2008).

*

What is this relentless apocalyptic vision being fed to us, as if we knew already what is to come? Or even more ominous, that we are making this happen by telling our stories, like willing some curse upon ourselves. All those pre 9/11 Hollywood movies that enthralled audiences with image after image of New York buildings exploding, alien attacks where people ran in the streets under the falling rubble of the Twin Towers and the Empire State. All those flood stories. All those Apocalyptic end times visions.

*

Alister Bartholemew, singer, songwriter, friend from Saibai in the Torres Strait Islands, calls me to tell me he has written a song he wants me to hear.

'Sure,' I say. 'What is it about?'

'It's based on the Saibaialgal mass exodus because of rising tides.'

'That's funny! I'm writing a piece on flood and global warming. Tell me about the song.'

'Well, in the 1940s. The king tides had ruined all the crops, and the elders decided to relocate to Cape York. By boat. Can you imagine?'

'I'd love to hear it.'

LUGGER BOAT CARRY

Lugger boat, lugger boat carrying hearts

Past island reef and shores

Nayguy wind pushes sails South

To higher ground por pamle and kin

CHORUS

Lugger boat carry me, to a red soil home

Leaving motherland in search of new found lug

Awa, guide us gently past the reef and wave

Lugger boat yarwar, Saibai yarwar

To a beyond our flooded mother, with flooded eye

We follow the morning star with our hopes and fears

The Nayguy wind pushes us South

Onto the red soil of the Cape

CHORUS

Our brothers and sisters, Akas and Athes

Set sail in the morning light

The luggers loaded with fish and sopsop

In a few short sleeps the new lug awaits.

CHORUS

(Bartholomew 2017 used with permission)

Paul: Did everyone leave?

Alister: No, some decided to wait out the flood. Saibai is a small island, and only a small section is habitable. In the past, they would hoist up their boats and sit in them until the king tide passed.

Paul: It seems a harbinger of things to come. So now the sea level is rising dramatically, will some think it's just a cyclical natural occurrence and ignore it, or will they decide to leave?

Alister: We have to trust the wisdom of the elders. They have seen the signs over years, the seasons changing, the crops; they know more than we think. They don't need some scientist to tell them their island is drowning. They have known this for a long time. But it's difficult to leave. It's home.

Paul: Indigenous resilience. I suppose they've had thousands of years of dealing with natural catastrophes. They will know what to do. But your grandfather left?

Alister: Yes, that may be the only option in the future too, an Exodus.

Paul: Where will all these people go?

Alister (with a wry smile): To the countries that caused the floods!

I can imagine all these refugees, boat people. 150 million people displaced by 2040, the figures predict.

Paul: Can I include your song and our conversation in my article?

Alister: Sure.

*

As I write this, The Guardian reports that Boigu and Masig Islands, either side of Alister's Saibai island, are facing inundation, and 'roads are being washed into the sea. A seawall installed to protect the community is already failing' (Doherty and Slezak 2017). These remote islands of the Torres Strait are some of the most vulnerable in the Pacific region, and islanders watch as their island is being 'eaten' by the sea. With such a fundamental connection to land and sea country, relocating will be devastating to the culture of the region. And their islands are small.

How will it end?

*

Each culture has an apocalypse story.

In Norse mythology, stars fall, the sun dims, and the ocean covers the earth. For Indonesians, a future incarnation of Buddha, Satrio Piningit will usher in a new golden age, heralded by floods and volcanic eruptions. Egyptian beliefs begin and end with the world being flooded with the waters of chaos. The goddess Hathor turns a disobedient human race into a river of blood.

The Noah's Ark story ends with a rainbow which is God's promise that he will never ever again flood the earth.

When I send clouds over the earth, and a rainbow appears in the sky, I will remember my promise to you and to all other living creatures. Never again will I let floodwaters destroy all life. When I see the rainbow in the sky, I will always remember the promise that I have made to every living creature. The rainbow will be the sign of that solemn promise. (Genesis 9:14-17, Contemporary English Version)

But as I write this (September 2017), Hurricane Harvey has just swept through South East Texas, Hurricane Irma has displaced three million Floridians, flattened islands in the Caribbean, and following closely on its heels is Hurricane Jose. These hurricanes have broken records. Harvey dumped the most rainfall in the continental US; Irma is the 'most extreme hurricane ever measured in the Atlantic'; and this is first time that two Category 4 hurricanes have hit the US in a single year (Shugerman 2017).

And are we worried?

Naah.

'We've had bigger storms than this,' says US president Donald Trump (2017).

Meanwhile, sea temperatures continue to rise. Sea levels rise, inch by inch.

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We have to trust the wisdom of the elders, he says. They have seen the signs over years, the seasons changing, the crops; they know more than we think.

What are these other ways of knowing and how do we listen to them?

Empire has created the time of history. Empire has located its existence not in the smooth recurrent spinning time of the cycle of the seasons but in the jagged time of rise and fall, of beginning and end, of catastrophe. Empire dooms itself to live in history and plot against history. (Coetzee 1980)

The islanders have done this all before, Alister tells me. We know what to do. We don't have to live in that Western paradigm of Empire, of rise and fall, that creates its own demise; rather we need to inhabit the world of cycles, of renewal, of working with, not against, nature.

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Exegesis

Patrick Nunn

Climate change does not discriminate, is no respecter of political borders, cares not who is wounded or who is empowered by its actions. History teaches us that all humans can do when confronted by persistent environmental adversity is to adapt. So why all the fuss?

Uncomfortably challenged by predictions of the future world, humans take comfort in half-baked stories from the distant past, in fleeting images from more recent times, even in the fantasies of comic-book writers. That will not help us adapt. Today more than ever before, humanity needs a good dose of realism. We are ingenious, astonishingly so when you look at how far we have come in a few hundred years. We can rise to the challenges of climate change by engaging with science, by adopting science-informed solutions to these. We must build walls, we must move houses and roads to safer locations, we must sacrifice entire islands and river deltas. And we must start now.

What is wrong with this picture?

It presupposes we are not human; it assumes we are emotionless beings, detached from caring both about each other and about the world we inhabit. In his 1959 book, The Two Cultures and the Scientific Revolution, C.P. Snow argued that the lack of mutual empathy and understanding between the humanities and the sciences was preventing many of the world's greatest problems from being solved. Snow hoped things would change but not much has. Most countries force mid-teens to choose between 'sciences' and 'arts', reinforcing a disconnect and embedding a prejudice that will stay with most of them for life.

Scientists see the world objectively, rationally, and use language that reflects this view. Non-scientists invariably express their worldviews differently, sometimes invoking the existence of a providential deity or perhaps an ethical duty of stewardship towards the environment. Others hide their lust for gain behind facades of 'fake' science and an ersatz benevolence towards those 'less fortunate'.

How can we move forward?

Our collective future lies in the hands of both scientists and humanists and – most importantly – with far-sighted leaders who recognise that human solutions to non-human challenges like climate change can only be effectively and sustainably met by combining the wisdom of both.

Science tells us how much warmer our planet is likely to be by the end of the 21st century and can outline the ways in which this might impact us most. The same applies to sea level – it is hard to see how in fifty years' time many of the world's coastal cities, from Venice to Shanghai, from Brisbane to Nadi, might remain as habitable as they are today. Science can tell us that tropical cities might become unbearably hot and unliveably humid in a few decades time … yet also tells us that using more air-conditioning powered by fossil fuels is a bit like shooting ourselves in the foot.

Science is good at painting a picture but generally quite hopeless at making people appreciate it. It is the same with how we respond to climate change. It is simply impractical to expect world leaders, especially those with their eyes on the next election, to drive long-term plans for adaptation at the pace demanded by science. In democratic societies, this is more likely to be accomplished autonomously by an educated populace which acknowledges that adaptation can be effective and sustained only if it is driven by informed individuals, not by diktat.

So it falls to universities across the world to realise their growing responsibility in this area: a responsibility to educate their students to be ambassadors for a new world order, which might ultimately enable all people to understand what is happening to the world we occupy and what we need to do to survive. For we can survive, no question, but not readily through the iterative and inadequate (albeit worthy) efforts of the 'community of nations' but rather through the spread of a grassroots awareness about climate change and its effects that is grounded in the choices of individuals and supported by the agencies (like governments) that control the bigger picture at our behest.

Critics would say this is just a killjoy 'green' agenda. Which of course is true. But do we have a choice? If you are drawing water from your well faster than it is replenished, then of course your well will one day run dry – and then you will be thirsty. If the fish in the ocean are reproducing at only one third of the rate at which you are removing them, then one day there will be no more fish. And then you will go hungry, particularly if you occupy an island in the middle of the ocean. So you can characterise the debate as a 'green' one, but it is more a question of survival. If we have no water and no fish, how will we survive? So citizens of richer countries that have a disproportionately greater access to commodities (like potable water and fish) need to realise – as many are – that their consumption practices are neither sustainable in the long term nor equitable in the shorter term, given that over-consumption in Country A often means under-consumption in Country B.

This leads us to think about diversity. In an increasingly globalised world, there is a temptation – especially amongst decision-makers in richer countries – to consider every person on earth to be the same. The assumption is often that, even if they are not as people in richer countries, they aspire to be. In my experience, this is wrong and leads to a waste of richer-country resources in trying to force behaviour change in poorer countries where people's world views are quite distinct.

How will it end?

However we regard the 'inconvenient truth' that is climate change, it is unstoppable. Some view it as disrupting economic growth, both as individuals and as nations. Others see it as divinely-instigated and search for portents to reveal the future. Many others have views that fall somewhere between these extremes. To ensure optimal adaptation, our collective global response needs to meld both the scientific and the humanist viewpoints; to engage as many people as possible. People to chortle at Chaucer, to sympathise with Saibai. Science is needed to convince the doubters, to rein in the extremists; humanism is needed to make science palatable, to localise understanding and responses.

Humanity has always been quick to see the end of the world; indeed, flirting with eschatology may be a deep-rooted human trait. But our species has endured for several million years, surviving numerous evolutionary bottlenecks. Climate change will not defeat us.