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The Sir John Young Oration

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By Don Aitkin

It is an honour, though a sad one, to be giving the initial Sir John Young Oration. Sir John Young was until his death the Chairman of the Melbourne Committee of this august body, and a long-standing member of its International Executive. He was a member of a now rapidly diminishing group of men and women who served in the Second World War with distinction and then in peacetime gave an even more distinctive life of service to the community. Sir John was Chief Justice of Victoria for 17 years and the State's Lieutenant-Governor for 21 years. His connections with Victorian life were wide-ranging, but they centred on law, the armed forces, universities, scouting and the Order of St John. You can get some sense of his eminence-to-be by learning that after the war he served as Sir Owen Dixon's associate at the High Court of Australia. He was responsible, three years ago, for the highly successful *conversazione* on 'Judicial Activism: Power without Responsibility?'

He had a firm sense of what a *conversazione* should be: a discussion, a conversation if you like, whose point is illumination, not confrontation. I endorse that perspective. There is ample confrontation in Australian life, and much of it is empty of illumination. The appeal to reason in our political life is usually drowned by the appeals to passion, to prejudice, to popularity and to party loyalty. You might think that the wonderful increase in the proportion of educated men and women over the last sixty years would have changed the balance in favour of reason. If only it were so! But with increased education have come the discordant claims of Territory and Authority: today's workforce is dominated by professionals — 'knowledge workers' — and they often protect their turf, denying to others the right to speak.

Introduction

The title of this *conversazione* is "Climate and its Discontents", and it is well chosen. Australian discussions about 'climate change' too often embody varying mixtures of deference to presumed authority, personal abuse, scorn, passion and fencing. I will do my utmost to maintain the tenor of a good *conversazione* in my address, and trust that you will later agree that I have done so. The brochure that you have received gives a variety of accounts of the climate-change issue, but I will add my own brief one. Twenty years ago, two international organisations created a third, 'The Inter-Governmental Panel on Climate Change', with a brief to consider the impact of human activity on the planet's climate. The IPCC has issued four reports, the most recent in 2007, each with a 'Summary for Policy Makers'. The Reports, and more forcibly the Summaries, warn us that our use of fossil fuels is warming the planet's atmosphere dangerously, and we must take urgent action to change our habits! Although, as you will hear, I am rather sceptical

of the current orthodoxy about anthropogenic global warming, I am not someone who thinks that everything is OK in the world and we should simply get on with our lives. Rather, I am, and have been for twenty years or so, someone who thinks that as a society we should try to live in a more sustainable way, though I find the notion of ‘sustainability’ very slippery. I am therefore concerned about how we in Australia manage water, how we deal with a diminishing supply of oil, and how we allow our population, and that of the world, to rise and rise, as though that doesn’t matter or is someone else’s responsibility.

My talk had the working title ‘Coming to Terms with a Major Issue’, because, as a political scientist and historian, I see the current approaches to climate change as arguably as important as going to war. Some say the issue is the most important that humanity has ever faced, and that it is absolutely urgent that we do various things right now. I remind you that the same importance was given a decade ago to avian ‘flu, in the 1970s to the alleged limits to growth, and in my youth about the coming nuclear third world war. Indeed, it is an understandable human failing to see the time we live in as the most important time of all, to see all human history as leading inevitably to this point, and to see the problems that face us as supremely important to our species.

The Language We Use

In the case of anthropogenic global warming, or greenhouse gas emissions, or climate change — I’ll discuss terms in a moment — we ought to be in a much more open situation than in a prelude to war. Inasmuch as there are facts, they are available to all of us, as are the arguments. It should in principle be possible for us to come to some kind of agreement about the nature of the issue. Unfortunately, this is not the case, and there is no agreement, though there are claims that ‘the science is settled’; some of the disagreement is about proper inference, which is par for the course in academic matters. But some reasons are political, and some are quasi-religious. It also turns out that what are said to be facts seem, under close examination, not to be facts at all, but conjectures, approximations or possibilities. We can nevertheless press ahead and keep asking questions for which there ought to be answers. There has been intense pressure on national governments over the past decade or so to accept the view that human beings have caused a significant and alarming change in the world’s climate. Once our government announced that it took anthropogenic global warming seriously, and that it would soon introduce an emissions trading scheme, the culture of our society moved in harmony — just as happened when its predecessor involved us in war.

So, many people now take as given, and talk as though, humans have indeed caused global warming, and that in consequence ice-caps are melting, seas are rising dangerously, and higher temperatures and droughts are coming quickly. Many parts of our society have begun to act as though all this were true, as though trading in carbon credits is a rational activity, and as though our actions in reducing greenhouse gas emissions will have an appreciable and beneficial effect on our climate. I am still unpersuaded that any of this is the case, so let me take you into the issue, as an educated

person happy to try to understand and to look at the arguments and evidence. And I'll begin, as promised, with a few definitions.

I start with the word '**weather**', which is famously one of Melbourne's natural attributes. Weather is the condition of the atmosphere at a particular place at a particular time — how hot it is, how wet, how windy. It is what weather forecasters offer us for the next day. '**Climate**' refers to the prevailing weather of a given place over a long period: a particular location can be said to have hot, dry summers, a wet, cool winter and generally south-westerly winds. We can say that because these conditions have been true for the last century or more, despite an occasional variation. '**Climate change**' might most sensibly be thought of as a shift of some significance in those prevailing conditions — winters becoming warmer, for example, or summers becoming cooler, and staying that way. For us to measure climate change and decide if the shifts are significant, we need to be able to measure accurately. One of the factors that can be measured is temperature, and '**average global temperature**' is a construct of the average difference between the daily minimum and the daily maximum temperature measured by a couple of thousand thermometers distributed around the world. I am not at all sure the constructions of this global average are either valid or reliable, given the difficulties in measuring accurately, but they are talked about as though they were true and accurate. There are other ways of measuring the planet's atmospheric temperature as well, principally by instruments carried by satellite and balloon.

I haven't quite finished with words and meanings. '**Global warming**' is a phrase that has been used to refer to the apparent truth that average global temperature has been rising, in a somewhat unsteady way, over the past century and a half. '**Anthropogenic global warming**' is a phrase used to suggest that it is human activity that has caused this warming; a variant of it is '**human-induced climate change**'. We human beings are alleged to be responsible because our burning of fossil fuels in cars, aeroplanes and power stations, fuels that are composed mostly of carbon, increases the proportion of carbon dioxide in what are called '**greenhouse gases**'. These gases trap some of the sun's radiated energy in the atmosphere, making the air warmer than it otherwise would be. You probably all remember from school that were it not for the greenhouse effect human life on earth would not be possible. The two most important greenhouse components are clouds, which we can see, and water vapour, which we cannot see exactly, though on what we call humid days we can see some of its effects. Carbon dioxide is quite a minor greenhouse gas in volume terms, though its importance in terms of radiation is much greater. It is argued that reducing our use of fossil fuels will reduce the amount of carbon dioxide going into the atmosphere, and thereby reduce the rate of increase of atmospheric temperature. It is important to point out that carbon dioxide, despite the title of the government's paper, is not a pollutant in any straightforward sense. Indeed, it is the stuff of life for plants and for animals that eat plants. Whether you are a vegan, a vegetarian or an omnivore, carbon dioxide is very important to you. In a world with much less atmospheric carbon dioxide, we would be scratching to find something to eat.

In spelling out these definitions, I have kept focussing on what I see as the central issue about climate: to what extent are we responsible for any measured change in it? To which

we could add a rider: if we are affecting the climate, how serious are the consequences likely to be? And we could add a second rider: What should we do about it, if we are affecting the climate and, if the consequences are serious, our contribution is, say, a quarter of the total? These three questions seem to me to be at the heart of the Great Climate Debate, and they will be at the centre of the rest of this talk. Because they are so central, I suggest that you try to push away from your mind the multitude of climate-related events and stories that flow to us almost on a daily basis in the media. Most of them are put forward in a scary way, and my proposal for dealing with them is to pause, and then to decide in which of two boxes to put them. Threatened polar bears, threatened barrier reefs, threatened inland river systems, threatened coastal suburbs, threatened species, the threat of malaria everywhere, the threat to human life itself — such scary stories need discriminating treatment. If the world is warming because of natural forces of one kind or another (or indeed of a number of kinds), then we need to adapt to that change and devote appropriate resources to our adaptation. If, on the other hand, the planet is warming because we human beings are causing it to warm, then we may need to do something about it — if warming is a bad thing. I suggest that we might adopt the practice of not talking about climate change, other than to say that it occurs all the time, but insist that any debate focus on alleged anthropogenic global warming — because that requires us to ask whether or not we human beings have had an effect on our climate, and if we have had such an effect — to what extent. These are the key questions.

Two Central Propositions

My own answer to it is that it is not at all clear that we are having a significant effect, or any measurable effect at all. For me the arguments used by the IPCC to support the proposition that we are having a major adverse effect are not at all persuasive, while the data advanced as evidence seem to me spotty and inconclusive. Let me reduce the IPCC stance to two propositions that will, I think, be familiar to you.

Proposition 1. Over the last century the world has been warming up as we have begun to burn more carbon.

Most of those who take an interest in the issue would agree that the world seems to have been warming up. It is also true that the consumption of fossil fuels increased sharply after the end of the Second World War. You will all be familiar with the proposition that a correlation by itself does not imply a cause. It is true that the consumption of Scotch whisky between 1950 and 1960 increased in very similar proportion to the rise in the salaries of Presbyterian clergymen, but it is not commonly suggested that they were responsible. There is a correlation between rises in CO₂ levels and rises in temperature during the 20th century, but it is not a strong one, and that suggests that something else (at least) is at work. As it happens, the IPCC does not seem to perform, and does not report, the outcomes of the ordinary kinds of regression analysis that one would use in cases like this, let alone more sophisticated statistical analyses, which makes its use of language such as ‘very likely’ somewhat puzzling.

What else can be said? First, it seems likely that the world has been warming up for quite a long time — since at least the early to middle 19th century, and possibly a good deal earlier. We know that many glaciers were retreating in the 1840s, because the measuring of glacier advance and retreat began at this time, with the rise of the gentleman natural philosopher with his urge to explore, measure and explain. It is possible that the glaciers had begun to retreat even earlier. We also know that Europe had a particularly cold spell in the 17th century, and we know that there was an earlier warm spell in the early modern period when English monasteries made wine, and settlements were established in Greenland. Earlier still, the first two centuries of the Christian era seem to have been warmer and wetter. I have stood on what were once Roman wheat-fields in North Africa, next to a great reservoir that once collected winter rain for irrigation, a marvellous piece of Roman architecture and design. Today, while the reservoir has survived, there is nothing but sand anywhere near it. Cold and dry periods, a shift in rainfall patterns, and a prevailing Saharan wind, have rolled sand across what was once fertile land. Two-thirds of the wheat that produced the bread for Ancient Rome, a city of a million people, came from Libya and Tunisia. Not today. As I see it, parts of the planet seem to go through longish cold and warm periods, and we seem to be in a warm one at the moment. I think that is what I would call the ‘default’ position about global warming: the historical evidence is that the planet warms and cools over quite long periods. There are theories about why this happens, but none of them has anything to do with greenhouse gas emissions. In short, we are not obliged instantly to accept human activity as a cause of recent warming. Such a proposition needs to be strongly supported by other argument and evidence.

Second, while there seems to have been a steady rise in the production of atmospheric carbon dioxide there has not been an equally steady increase in temperature. In the last century the planet seems to have warmed from 1910 to about 1945. In the middle of the century, just as carbon dioxide emissions began to increase noticeably, temperature slightly cooled. While there was a further increase in temperature from 1975 to 1998, there has been no increase since then. If anything, there has been a slight cooling, even though the burning of fossil fuel has increased. In fact, on some scales average global temperatures seem now to be where they were more than twenty years ago. This is not what the IPCC models predicted. What does that tell us? My initial response is that there must be other factors at work in the irregular warming of the last 150 years, and that there is no straightforward relationship between the production of carbon dioxide and an increase in temperature. A good example is the El Nino spike of 1998, which produced higher-than-usual temperatures worldwide. The IPCC accepts that it cannot model El Nino events as the outcome of rising carbon dioxide levels. Again, we need more argument and good evidence.

Proposition 2 The burning of fossil fuels releases more carbon dioxide into the air, and that must increase temperature dangerously because carbon dioxide is an admitted greenhouse gas.

This apparently simple proposition conceals a number of most important assumptions. I start, however, by agreeing that in physics an increase in carbon dioxide proportions has

an effect on temperature. But what sort of effect? Let me now add the sort of head-scratching that goes on when you look hard into what happens.

First, the increase in temperature is not linear but logarithmic and diminishing, which means that each new increase in carbon dioxide causes a smaller increase in temperature than the last similar increase. It is assumed that in pre-industrial times — say, 1750 — the carbon dioxide proportion was around 280 ppm. The carbon dioxide proportion today is around 385 ppm. If allowance is made for the increase since around 1750 in other long-lived greenhouse gases, however, converted into what is known as the ‘carbon dioxide equivalent’ of their global warming potential, the present concentration of all human-linked greenhouse gases in the atmosphere turns out to be equivalent to about 470 ppm of carbon dioxide. This means that most of the increase in temperature that would result from a doubling in carbon dioxide levels should already have occurred. The next doubling, to 1120 ppm, is a long way off.

Second, how much warming actually does take place for any given increase in carbon dioxide? This question is at the heart of the term ‘climate sensitivity’ and ‘radiative forcing’, terms that did not appear in the IPCC’s first report. It has put forward the view that for a doubling of the amount of carbon dioxide in the air we would see a temperature increase of between 2.0 and 4.5 degrees Celsius, with a likely midpoint of 3.00 degrees. It seems that this proposition comes from arguing backwards from the IPCC models, and the need to find some approximation for the effect that carbon dioxide has on temperature. Some of you might be looking for the precise measurement so typical of normal science. A range of 2.5 degrees means that the error in all this may be much greater than the effect that is being searched for. Dissenters with respectable acumen in this area argue that the IPCC has set ‘climate sensitivity’ much too high, and propose lower conversion rates, some of them below 1 degree Celsius. Were climate sensitivity in fact at that level we would not be having any fuss about anthropogenic global warming. Here, as in so many other areas, the science is not settled at all. If it were, ‘climate forcing’ would be measurable straightforwardly, without any error bars, and there would be no argument. The IPCC reports do not make much of uncertainty and error in all the reasoning. I think they should.

Third, when the temperature increases the effect is to increase cloud levels, through evaporation from the sea. But increased cloud levels will also reflect more sunlight away from the planet, as well as increasing the temperature below the cloud cover. What is the net effect? Is it warming, or cooling? We don’t know. The IPCC assumes that the main feedback effect is a warming one caused by the evaporative release of water. But the opposite is no less plausible. Very little is known about clouds and water vapour on a planetary scale, but all models have to start with assumptions and estimates. It seems to me that the IPCC models may well start with too high a level of ‘climate sensitivity’. We will know in due course.

Fourth, an important assumption is that the increases in carbon dioxide stay around in the atmosphere more or less permanently. Is this in fact the case? We don’t know. There is lots of argument both ways. Since carbon dioxide is the basic plant food, we might

associate an increase in carbon dioxide with an increase in plant vigour. That seems to have been the case over the past thirty years, which suggests that the biomass happily takes up some at least of the increase. On the face of it, there is nothing to suggest that mildly increased levels of carbon dioxide are going to be harmful to human or animal life, setting aside the increases in temperature that are supposed to follow. The geological record suggests that in the distant past the earth has enjoyed very much higher levels of carbon dioxide – and temperature – than now, with luxuriant plant life as a consequence.

But, fifth, why is warming thought to be a problem? Well, if it continues for a long time it is likely to slowly change the pattern of settlement that we have known. If warming is happening through forces other than human activity, and is to continue, we will simply have to adapt, as I have said before. The associated projections of more droughts, floods, hurricanes and storms rest on unvalidated computer models. But a slow increase in warming by itself is not a problem. It is much more favourable to human life than a slow cooling, for obvious reasons.

Let me stop for a moment to repeat that if it were straightforward to show that the kind of increases in carbon dioxide that have occurred were really harmful to humanity, I would not be here this afternoon and this *conversazione* would be on another topic. The IPCC's four reports, especially the last, and the Summaries for Policy Makers, go to considerable trouble to try to persuade the reader that harm is the only consequence. But they do so through what I would call tortuous argument, equivocal data, and the brushing aside of inconvenient material — as I find also in the Garnaut Report, which does not notice that the main population movements in Australia are from the cool south to the warm north.

Can these differences of opinion be settled? Not directly, or at once. The standard way to test a hypothesis is to look at the evidence. Since that is not obviously there, the IPCC has resorted to a search for something called the 'fingerprint', or sometimes the 'signature', of AGW. It's rather like saying, 'Well, our models say that it should be there, because we can't explain climate change without it. So let's find it.' There is an obvious response to that, which is that climate change occurs for natural reasons, but let us accept for the moment that were AGW to be real and significant, we should see a fit between the models' predicted pattern of temperatures and what is actually observed. Early papers suggested that this might be the case. But as the years have passed the fit between predicted and observed values looks less impressive, in particular between what the models say ought to be the case in the lower levels of the atmosphere and what measurements from radiosonde balloons and satellites tells us is actually the case. There is a body of expert opinion now that argues that there is not a good fit at all, and indeed that the warming that has been measured over the past half century cannot be explained by reference to AGW, because its effect is simply too slight. And if those people are right, that suggests the IPCC's climate sensitivity figure is just too high. Other scientists have recently leaped to the defence of the IPCC and put forward a counter-argument. This is what happens all the time in scholarly debate. But it is, to say the least, not an example of 'settled science'.

I have come to the conclusion that while the IPCC position might be true, the arguments are not persuasive and the evidence even less so. There is far too much reliance on authority, on alleged consensus, and on what ‘the models’ show, in large part because there is no convincing direct evidence of the link. I like models (I first used a large simultaneous-equations model to try and make sense of trends in voting behaviour just over forty years ago), and they are a useful device in some forms of research. But they are not, ever, *evidence* of anything. If the earth is warming, it seems to me that the forces causing that warming are powerful and long-lasting. If we are adding to those forces, the human addition is neither obviously powerful nor easily measurable. In Australia, our own production of carbon dioxide can be of little or no consequence in affecting our climate, where the powerful effects come from the El Nino Southern Oscillation, about which you all know something. Reducing our own greenhouse gas emissions, again in my view, can have virtually no effect on our climate, at very great cost to our economy and society. So I would not advise a minister to go down that path. But of course no minister asked for my opinion. The ALP was already committed to the course it has since followed.

The Media, and the example of the Maldives

What I would like to do now is to illustrate for you what has happened in the media with respect to this issue, by examining in close detail a climate-change story typical of scores that I have seen over the past couple of years. This one comes from Toronto’s quality newspaper, *The Globe and Mail*, and I read it while I was in Ottawa a couple of weeks ago. The half-page story sat around a wonderful aerial photo of Male, the capital of the Maldives, and the point of the story was that the new Prime Minister of that island state intends to set up an investment fund to buy a new home for the Maldiveans ‘should global warming raise sea-levels and submerge their picturesque but low-lying homeland’. The photo was superb, because it shows a small city absolutely surrounded by the sea, and the PM’s proposal, to say the least, is a novel one. So far, so good.

But the reporter, Siri Agrell, then added some comment on the Maldivean situation provided by ‘climate-change expert’ Hadi Dowlatabadi, the holder of a Canada Research Chair at the University of British Columbia. Dr Dowlatabadi agreed that it was likely that the Maldives would one day disappear. ‘It depends,’ he said, ‘on how Greenland melts, but easily within a century.’ If all of Greenland melts, the sea-level will rise seven metres. But even if climate-changing emissions were stopped today, sea-levels will rise by 1.5 metres in the next 300 years.

Then the reporter moved to another source altogether, probably the newspaper’s back files, which stated that ‘In PNG, residents of the Carteret Islands have already had to relocate because of rising sea-levels attributed to climate change. Residents of Tuvalu and Kiribati are also at risk of becoming climate refugees.’ Next we learn that an alliance of small island states recently held a press conference at the United Nations urging international support for projects that would aid their survival in the face of climate change. ‘Members of the 44-nation alliance described the new reality of hurricanes, tsunamis and other weather phenomena that are already affecting their fellow citizens...’

Dr Dowlatabadi re-appeared at the end of the story to tell us that people who are relocated never recover from this event, and tend to have very high suicide rates.

Now, what would the casual reader get from all that? The detail of the story is pretty grim. The Greenland ice-cap is melting; the Maldives could disappear easily within a century; if Greenland melts completely, seas will rise by seven metres; in any case seas will rise by 1.5 metres over the next 300 years; and there is a new reality of hurricanes and tsunamis connected to global warming. We know all this because Dr Dowlatabai is a climate-change expert. The subliminal ethical message is that we should help because we are the cause of the global warming.

What evidence is there for any of this? Let me start with Dr Dowlatabadi, whom I have never met. You do not get a Canada Research Chair easily, so he is plainly a proficient and well-regarded academic. He may have not been properly reported, and there can be no real doubt that he said a lot more to Siri Agrell than appears in the article. All newspaper stories are constructions, as are all books and films. But let me say, as gently as possible, that in my opinion there are no climate change experts, in the sense that such people cover all aspects of the domain with authority: climate change is a vast topic and it has as yet no central body of knowledge. All those who speak about climate change, myself included, do so from their own knowledge base and with their own capacity to deal with argument and evidence, much of it from disciplines other than their own.

Now let us look at the other details in that story. They centre on four propositions — that the seas are rising, that the Greenland ice-cap is melting, that hurricanes and tsunamis are related to these changes, and that they are all connected to our emitting greenhouse gases. You will see that this is the central IPCC story, with some details that are relevant to the Maldives. So are the seas rising? I think that the moderate answer is that, yes, the seas are rising and that they have been doing so for a couple of centuries, at about 20cm a century. You will appreciate that it is really difficult to be sure, especially about what has happened in the past. But a slowly rising sea-level would be consistent with a slow warming of the planet, partly because as glaciers and ice-caps retreat the melted ice finishes up in the sea, and partly because a warmer body of water will grow in volume and rise for that reason. Land sinks, too, which is why Venice is in trouble. But are rising sea-levels happening right now? Well, they may be, and they may not be. The IPCC projects a possible sea-level increase of 18cm to 59cm this century. Satellite measurements go back to 1992, and they show an average increase of 3.2mm a year, which is in the middle of the IPCC projection. In the past few years, however, the sea seems to have cooled and the satellite measurements suggest a slight fall in sea level. What are we to make of that? What about the Maldives themselves? A Swedish group has been studying sea levels in the island chain, and reported at the American Geological Society congress in 2003 to the effect that the current sea-level has been much the same for the last 4000 years, with an increase of 30 cm from 1790 to 1970, and no increase since. It's not hard to find articles about any subject you are interested in. Why didn't the reporter find that one?

What about the Greenland ice-cap? Here again there is divergent evidence. There is good satellite evidence that the ice-cap is retreating at the edges, which is consistent with what

has been happening to glaciers for the past 150 years. At the same time, it seems that the ice-cap is growing vertically at about 5 cm a year, which is consistent with other evidence that the average summer temperature at the summit of the ice-cap has *decreased* at the rate of about 2 degrees Celsius a decade over the past twenty years. We should keep remembering that a lot depends on how long a time-span we are considering. We know that Greenland has been a good deal warmer in the past than it is now (there is at least one Viking burial ground from several centuries ago that is now under permafrost), and it seems that Greenland experienced a short but rapid warming in the 1920s and 1930s that could not have been connected with postwar greenhouse gas emissions. Finally, the Greenland ice-cap sits in a huge valley, so it can't slide into the sea or do other extraordinary things. All told, the Greenland ice-cap seems pretty safe to me.

What about hurricanes and tsunamis? The weight of evidence is that as carbon dioxide has increased in the atmosphere, the incidence of hurricanes and violent storms has actually decreased. I am not proposing any causal link at all. No one has suggested, with any credibility, that the great tsunami in 2004 was connected in any way with greenhouse gas emissions. Whatever the 'new reality' referred to by the small island leaders in the story about the Maldives, it seems to have little or no relationship to available facts or to anthropogenic global warming. Why then did the islanders refer to it? Because, surely, it is a rhetorical weapon, and they have very little in their armoury other than rhetoric. Certainly the 2004 tsunami produced a metre-high wave that caused death and destruction in the Maldives, as it did elsewhere. People are leaving the Carteret islands, which are not far from Bougainville, and they attribute the rising seas to global warming. But the Carteret stories given by the old men suggest a process that is at least fifty years old, and as powerful then as now, which is not consistent with the greenhouse gas emission theory. In any case, sea levels do not seem to be rising in nearby Bougainville. The Carteret Islands sit on top of an ancient volcano. Perhaps the land is subsiding; perhaps the fringing reefs are sinking. I do not know, and I could not find a paper on that subject. But the hypothesis that the sea is rising rapidly there and nowhere else is plainly wrong. People have left Tuvalu, too, fearing that the seas will rise. But the evidence points strongly toward that island's experiencing a sequence of sea-level rises and falls mostly related to the El Nino Southern Oscillation: during the El Nino spike of 1998, the sea-levels at Tuvalu fell about a foot. About Kiribati there is little evidence one way or the other, save that people fear that the seas will rise.

I have gone into a lot of detail here to make what I think is an important point. I have little doubt that one could analyse almost every scary climate-change story in the same way, and with much the same result. The story about the vanishing polar bear, for example, seems at the pictorial level to have been akin to fraud, and there is no evidence that polar bear numbers are declining. The original Maldives story was plainly much more frightening than it need have been. The reporter and the climate-change expert added to the scares with a repetition of possibilities that were not strongly based in argument or evidence. In my view, despite the wonderful photograph, it was a sloppy and tendentious article. But there is nothing sinister or novel in this state of affairs. Bad news sells; good news doesn't. There was a spate of stories about the shrinking Arctic ice-cap in 2007, but virtually none about the much greater Arctic ice area in 2008.

Anthropogenic Global Warming as conventional wisdom

Over the last twenty years we have had a constant diet of alarming possibilities about the weather, to the point where every drop of rain is scrutinised to see what it tells us about ‘global warming’. We are becoming phobic about climate, and fail to realise that our climate changes all the time, quite rapidly in the passage from summer to winter each year, more slowly, in the passage from sets of dry years to sets of wet ones and back again, and even more slowly still, in the passage of large areas of dry land into semi-desert, as occurred in South Australia in the 1860s and 1870s. ‘Human-induced climate change’ (the IPCC’s phrase), to use J. K. Galbraith’s memorable coinage, is ‘conventional wisdom’, and it is maintained by the media and most organisations, simply because it is conventional wisdom. Moreover, the media employ very few people who have training in science, and the tendency is for journalists to go to recognised sources for comment, as the reporter on *The Globe and Mail* did. And the recognised sources support the conventional wisdom.

But why has anthropogenic global warming been allowed to become conventional wisdom, if the scientific base for it is so uncertain? I think that there are four powerful, interconnected reasons: the rise of ‘Green’ environmentalism, the decline of organised Christianity, the great authority of organised science, and our contemporary preference for and reliance on the visual over the written. Each of these factors could occupy a whole address, but I will be very brief.

First, environmentalism. The term ‘Green’ as a political descriptor comes from Germany in 1980, and is now widespread; indeed, there is now a Global Greens movement, which has its own Charter and held its first gathering in Canberra in 2001. Central to Green thinking is the importance of the health of the biosphere to human well-being, which means that the Greens are firmly involved in the Climate Debate. One strand of Green thought is ‘Gaian’, which sees human beings, and all other creatures, as part of a single entity, a super-organism, Gaia, the life-force of the planet. The word ‘Gaia’ (a Greek goddess) comes from the Gaia hypothesis of the English scientist James Lovelock. From the Gaian perspective human beings have no ethical right to adversely affect the biosphere of which they are a part.

Second, the steady decline in Western societies of the power of organised Christianity in the second half of the 20th century (the USA perhaps excepted) seems to me to have left something of a vacuum into which Green quasi-spiritual thinking has moved. Its movement there has been helped by what seems a widespread feeling across Western societies that there is something missing in people’s lives — that material consumption does not, in fact, finally satisfy human beings. While Australia is three times wealthier than it was when I was a boy, it is plainly not three times happier. The search for a new faith, a new sense of meaning in life, has been in harmony with Green political thinking, which tends to be anti-materialist and anti-capitalist, and has taken over some of the space that was once occupied by Marxism — though it is not at all Marxist in its construction of the world. The fascination by some environmentalists with the possible

melting of ice and the resulting flooding of the earth seems to me reminiscent of Genesis and the story of Noah. The fact that the melting of sea ice by itself causes no change in sea levels seems to have passed by such prophets of doom. These apocalyptic scares, never, in my experience, countered by scientific bodies, have probably raised the levels of anxiety within our society. They have little or no basis in fact, but they lead to an urgency about the need for solutions, and solutions *now*, that have affected virtually all the world's governments. What is more, leaders are prone to use apocalyptic tones when talking about climate change, so they themselves are partly responsible for scaring us. Tony Blair was only one of a number of presidents or prime ministers given to say, more than once, that 'global warming' or 'climate change' was the most serious problem facing humanity over the course of its entire existence — or words to that effect. Professor Garnaut has said that if we do not follow the course he has mapped out, humanity will regret it 'until the end of time'. This is surely pulpit talk, which abounds in the blogosphere. We ought to be able to do better than this. It is most important to recognise that both sides of politics have been won over to the AGW proposition, which means that there is no sensible debate at the parliamentary level. Once AGW has become conventional wisdom at the political level, each side has the problem of managing expectations. To re-open the debate will immediately lose it support, even if, later on it attracts support. So far, it is a risk that our present Opposition sees as too high.

And, third, the group that ought to be there, questioning, arguing and conducting the debate consist of the scientific bodies of various kinds. But the big ones are on the side of orthodoxy. The Australian Academy of Science has issued a number of statements in which the Academy appears to act as the kind of approving voice-over we get in advertisements ('Your doctor recommends...'). As recently as 1 July 2008, only five months go, it commented that 'the increases in global average temperature and sea level are unambiguous and are almost certainly primarily due to greenhouse gas emissions'. 'Almost certainly'! There is no good evidence to support either statement, yet it comes from Australia's most prestigious scientific body. Many of the Academy's statements on climate change seem to admit of no uncertainty at all. The Royal Society in the UK has published patronising rebuttals of eight 'misleading arguments' about climate change. Its equivalents around the world have done very similar things. You are entitled to ask why. And I have no good answer. There are lots of scientists who do not accept the orthodoxy and they include fellows of learned academies, but they do not publicly disagree. That isn't the way things are done. I am happy to say that my own Academy does not make political statements. I can only assume that scientific bodies, for so long on the outer in political life, relish being at the centre of things, able to direct public resources into science. Certainly a great deal of money has gone into the climate-change domain. But the great danger is that if the AGW bubble bursts, and at the moment I expect that will happen, 'science' will lose its powerful virtue as a form of thought that is rigorous, disinterested and intent on discovering the truth. In my judgment the senior scientific bodies have done science a great disservice in becoming supporters of a cause. Einstein did warn them of that danger.

Finally, we the citizens sit in front of our televisions, and see, for the umpteenth time, the same polar bear on the same ice floe, the same shot of steam arising from cooling towers

in power stations, the same cracked beds of dry rivers, parched pastures with bony sheep — and accept too readily that these images are signs of anthropogenic global warming. And it is plain why we do it. It's easy, and we're lazy, some of us feel guilty, and there are often other things on our agenda. It took me only an hour to take an analytic scalpel to the Maldives story, but I had a reason for doing so, and most people don't. If we put together what I see as a semi-religious environmentalism, governments that have committed themselves, partly for electoral reasons, to a view of climate that is not very soundly based, mass media that go with the flow and employ few sceptical people with any kind of background in science (not that you have to have one to ask intelligent questions), and the incessant repetition of scary stories about global warming, you can appreciate that the climate-change domain in Australia is in a terrible muddle — as indeed it is in most Western societies — and that is no credit to anyone.

Where Do We Go From Here?

How did we get into the muddle? My tentative answer is that the warming from 1975 to 1998, combined with the increase in carbon dioxide emissions at the same time, allowed the creation of a problem, a villain and a solution, each of them in harmony with the spirit of the times, apparently strongly supported by science. The issue and the solution attracted the interests of governments, and the movement to combat climate change by reducing greenhouse emissions has flourished, while its central doctrine has become an aspect of conventional wisdom. I am by no means the only person to question this conventional wisdom, and in any case all conventional wisdom should be tested regularly; that way we learn, and if the conventional wisdom survives a test it is stronger for it.

And the great thing is that not all conventional wisdom survives such tests. For thirty years I suffered from stomach ulcers that finally produced two duodenal haemorrhages. I was told that the case was a mixture of overwork, too much stress, hyper-acidity and incompetent valves. A year or two after I underwent a major and lengthy operation to deal with this condition, two Australian scientists discovered that the true cause was a bacterium called 'helicobacter pylori'. Today we deal with my condition with a pill, the two (Australian) scientists shared the Nobel Prize, and that old conventional wisdom has gone. It is worth remembering, however, that earlier the Nobel prize-winners were scorned and criticised for going against conventional wisdom. Twenty years ago, it was conventional wisdom that the Soviet Union was immensely powerful, and that we would need to deal with it for a century at least. The Soviet Union has gone. When the Berlin Wall came down and the two Germanys united, some 7,500 East German academics who had been teaching Marxism-Leninism in their universities discovered that in the new united Germany their conventional wisdom was no longer needed. It was also conventional wisdom until quite recently that banks and governments had learned a great deal since 1929, and that financial collapse could not occur again. Apparently, though conventional, that was not wisdom either.

I am sometimes asked whether I think that the scientists and academies that support the doctrine of AGW are engaged in some kind of gigantic conspiracy. I don't think like that

at all. The level of agreement with the doctrine is not in fact as great as is often claimed (the Academies do not and cannot speak for their members), and the IPCC is not, in my judgment, a paragon either of peer-review or of openness with data — but none of that is the point. AGW has become conventional wisdom. If there is real substance to the doctrine, I'll know that when someone can show me and other agnostics, unequivocally, and in a fashion that can be replicated in any laboratory in the world, just how much of an increase in the temperature of the atmosphere occurs with the burning of a set amount of oil or coal.

Until that happens, to repeat, we seem to be in a muddle. How can we get out of it? Well, we can go on questioning, which is what I am doing. The financial crisis has become an immediate corrective, because it is directing our attention away from AGW toward the more urgent question of whether people will have jobs or houses next year. The so-called urgency of the issue is fading, and that allows us to spend more time in measuring, researching and arguing, actions I proposed six months ago. Plainly there has been at least a lull in warming, and it may continue. The European Union, whose countries have been in the foreground of the move to curb greenhouse gas emissions, is losing its interest as its manufacturing industries wonder if they will survive. When I spoke on the ABC a few months ago I suggested that before long a government would, for perfectly sensible reasons, start looking hard at the orthodoxy. You will note that our government, though it talks the talk, is not proposing to do anything serious until 2010, and given that 2010 is an election year, I would expect that timetable to undergo something of a postponement — certainly until after that election. There are tremors of doubt in Europe, and Italy or Poland may spit the dummy and call for an enquiry. But the recently elected New Zealand coalition government has announced that it will re-examine the so-called 'settled science' of climate change to see whether it is in that country's interest to take part in post-Kyoto discussions. I wish it well, and hope that one day we will be doing the same. The process will not be an easy one.

Further Reading

The climate-change field is enormous, and no one can read it all. That is why I suggest that we concentrate on what I see as the central questions, and the ones closely related to them. Even then, the domain is very large. Much of it finally demands a reasonable capacity with mathematic and statistics. If you don't have that capacity, ask someone who does. As it happens, the IPCC itself does not display much interest in statistics, as numerous critics have pointed out, and this is a clear deficiency in its argument and interpretation of evidence.

The IPCC's voluminous papers are available at its website www.ipcc.ch/, while a sceptical scientific response *Nature, Not Human Activity, Rules the Climate*, published by the Nongovernmental International Panel on Climate Change, can be downloaded from <http://sepp.org/publications/NIPCC-Feb%2020.pdf>. The best place to start to come to terms with the 'debate' is a New Zealand website whose organisers come from the University of Canterbury at Christchurch. Their site www.climatedebatedaily.com attempts to give a 'balanced' perspective, but

it does list all the most active websites on both side of the issue. Whatever else you get from reading both sides, one conclusion you won't reach, I think, is that 'the science is settled'.

My own entry to this field came through the need to write a chapter on 'The Environment' for a book covering the next fifty years, that was to follow my *What Was It All For? The Reshaping of Australia*, Allen and Unwin, 2005, which surveyed the last fifty years. Two years later, the book has no publisher, the chapter is still to be done, but I have now written a lot, and read a great deal more, on AGW. My major contribution can be read in *The Australian Quarterly*, Vol. 80, No. 1, January/February 2008. My broadcasts on the ABC and my essays in *New Matilda* and *On Line Opinion* are available simply by going on the web.

The material in the section entitled 'Two Central Propositions' is available through the NIPCC link above, and through following the references. On the question as to how long carbon dioxide stays in the atmosphere, which is most important in the argument, I benefited greatly from a splendid summary paper by Arthur B. Robinson, Noah E. Robinson, and Willie Soon, 'Environmental Effects of Increased Carbon Dioxide', *Journal of American Physicians and Surgeons*, (2007), 12, 79-90, an article that is also relatively accessible to a non-scientist. Closer to home Tim Curtin has written two excellent papers on this question, one of which, 'Contribution of atmospheric carbon dioxide to increased global food production since 1980', has been accepted by *Energy and Environment*.

The Maldives story, 'Tiny island nation seeks dry land', appeared in *The Globe and Mail* on Thursday 13 November 2008. To learn more I used Google and Google Scholar, which are wonderful aids to research. It took about an hour's searching and reading to be able to write what I did.

A final thought. I start from the basic premise that our planet undergoes changes to its climate for powerful and long-term causes. It has known several ice ages, and seems likely to return to one in due course. Our whole human civilization has occurred in 10,000 years, in what is called an 'inter-glacial' period. Interglacials have been much shorter than ice ages! Unless strong argument and evidence is produced to the contrary, I will go on attributing what is occurring to us now (the last fifty years or so) to those natural forces. As I see it, the upholders of the IPCC position have the responsibility of showing me that I am wrong. As someone schooled in research I am always open to argument and evidence. Thus far, what I have seen is inadequate.

The perceptive phrase 'managing expectations' was not in my original paper, and was used by Andrew Robb in his own later paper at the *conversazione*. I have added it in this version, and am happy to make full acknowledgment.

