

DIGGING UP THE ROOTS OF THE IPCC

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Witnessing the intensity of the discussion about global warming today, it is hard to imagine a time when climate change was not a defining feature of social, political and economic life. Today, everything from floods in England to poverty in the Third World is discussed as a product of global warming. Yet it is a relatively new issue, barely discussed until 50 years ago, and established as a significant policy issue only in the past two decades. The Intergovernmental Panel on Climate Change (IPCC), which now sits like Solomon over key questions of international development, sovereignty and social progress, was not established until the late 1980s and only in the past 10 years has it enjoyed its exalted status. Yet the IPCC's most recent set of reports led the UK's environment secretary, David Miliband, to declare that 'the debate over the science of climate change is well and truly over', and 'what's now urgently needed is the international political commitment to take action to avoid dangerous climate change' [1].

So how should we understand the process by which climate science has come to have a defining impact on life in 2007? On one hand, there is the scientific research that has been conducted, which, most would argue, has strengthened our knowledge of climatic processes and the impact of man-made emissions. On the other hand, the emergence of the science of climate change coincided with strong cultural and political trends, which have interacted with the science and shaped our understanding of the climate change issue in a peculiarly misanthropic way.

While there may be different policy perspectives on the question of climate change, one central message dominates the discussion. This is that 'the science' has issued humanity with a warning that our activities threaten our very existence on planet Earth, and that 'the science' tells us that we should rein in these activities in order to preserve our existence. Because the message appears to come from science, not politicians or campaigners, it becomes a *fait accompli*. But if we are to develop a better understanding of how to move forward, we need to examine how this situation came about.

Many have criticised the scientific debate for becoming politicised—whether that be in terms of underplaying or overplaying the dangers presented by climate change—and this is an important issue to explore. But what has really been lacking in recent years is any substantive *political* debate about how we should view and respond to climate change. This has led to a situation where the IPCC, an unelected body, holds an unprecedented influence on the lives of everyone on the planet—and any attempt to question this body's legitimacy or actions is shouted down as 'denial' of the scientific facts. In discussing the origins of the climate change issue and the IPCC, this essay raises the following questions:

- How much of the global warming issue is shaped by new scientific discoveries, and how much by broader cultural and political trends?
- How has the interaction between scientists, international institutions, governments, media and activists influenced the development of climate change policy?
- Was the establishment of the IPCC a visionary act or an expression of political implosion in the West?

This essay does not attempt to provide a comprehensive history of the global warming issue; rather its aim is to contribute to the start of a critique. For whatever the facts about climate change can tell us, they do not tell us that the debate is over.

1. THE DISCOVERY OF CLIMATE CHANGE

The level of funding and attention attracted by climate change today is a far cry from the late 1950s and early 1960s, when a few scientists decided to investigate what was happening to CO₂ levels in the atmosphere as a consequence of manmade emissions. Indeed, according to the latest IPCC report, published in 2007, 95 per cent of 'all the climate change science literature since 1834 was published after 1951', while the number of articles published per year in atmospheric science journals tripled between 1965 and 1995 [2]. The first journal dedicated to climate change, *Climatic Change*, was founded in 1977.

A colourful account of the contrast between the global warming story now and half a century ago is provided by science historian Spencer Weart, in his fascinating book *The Discovery of Global Warming* [3]. According to Weart, Roger Revelle, the eminent American oceanographer (whom, incidentally, Al Gore credits with provoking his Damascene conversion on the climate change question), along with a small number of scientists interested in global warming, 'had taken up the question as a side issue' and 'saw in it a chance for a few publications, a detour from their main professional work, to which they soon returned'. Revelle secured a modest budget to hire a young geochemist called Charles David Keeling to establish a baseline 'snapshot' of CO₂ values around the world.

By 1960, with two years of Antarctic data in hand, Keeling reported that the baseline CO₂ level had risen and that 'the rate of the rise was approximately what would be expected if the oceans were not swallowing up most industrial emissions'. However, in 1963 'the funds ran out altogether, and CO₂ monitoring shut down', until Keeling secured a budget from the National Science Foundation to continue the work [4]. Keeling's data, as described in a recent IPCC historical overview of climate change science, are now regarded as having 'iconic status in climate change science as evidence of the effect of human activities on the chemical composition of the global atmosphere' [5]. But as Weart points out, this was not the discovery of global warming but 'the *possibility* of global warming' (my italics). Indeed, according to the IPCC's historical overview, 'it was not possible to detect anthropogenic warming in 1980', though some 'predicted it would be evident within the next two decades' [6].

One striking feature of Weart's account of the discovery of global warming is the extent to which, even when modern-day climate science was in its infancy, some scientists were prepared to speculate about the potentially destructive consequences of

man-made emissions. Keeling himself was involved in a conference in 1963, sponsored by the Conservation Foundation, which warned of the possibility of melting glaciers, rising sea levels and coastal flooding in the future. In August 1965, a climate conference hosted by the National Center for Atmospheric Research in Boulder, Colorado, opened with a presentation by Edward Lorenz, an early pioneer of chaos theory. According to Weart, Lorenz argued ‘that the slightest change of initial conditions might bring at random a huge change in the future climate’. Other scientists apparently agreed that, in contrast to the prevailing idea that the planet’s climate kept itself stable, the climate system ‘showed a dangerous potential for dramatic change, on its own or under human technological intervention, and quicker than anyone had supposed’.

How can we account for this leap from rudimentary findings to cataclysmic worst-case scenarios? Weart argues, convincingly, that such predictions were motivated as much by cultural trends as a clear-cut scientific truth. Citing popular protests against nuclear weapons tests, concerns about air pollution, and the effect of chemicals such as DDT, he argues that ‘science alone could not explain the deep shift in views’ about the stability of the climate system—rather ‘events had been altering the thinking of everyone in modern society’.

2. A CLIMATE OF UNEASE

These early speculations about human impact on climate were part of a burgeoning unease about man’s impact on the natural world. This was expressed in the influence of a number of books. For example, Rachel Carson’s *Silent Spring*, published in 1962, blamed the insecticide Dichloro-Diphenyl-Trichloroethane (DDT) for wiping out birdlife. DDT was banned in America in 1972 by the Environment Protection Agency and its use was then severely restricted elsewhere in the world—to the detriment of human life in developing countries, where the incidence of malaria, which continues to kill millions, could be greatly reduced by the judicious use of DDT. The World Health Organisation (WHO) finally reversed its position on DDT in September 2006. Yet despite the official recognition that DDT is beneficial to human beings and that the *de facto* ban was a fatal mistake, Carson’s *Silent Spring* continues to be viewed as a landmark warning about the problem of humanity’s impact upon the natural world.

In the early 1970s, James Lovelock, an instrument scientist employed by NASA, began to promote his Gaia hypothesis through journal articles and subsequently in his 1979 book *Gaia: A New Look at Life on Earth*. Lovelock’s idea was that the living and non-living parts of the Earth should be viewed as a complex interacting system that can be thought of as a single organism. Gaia, too, has gained the status of a landmark text of the nascent environmental movement.

The world’s first Earth Day in 1970 marked the spread of cultural concerns about environmentalism from the fringes of the hippy counterculture into the mainstream [7]. Millions of Americans took to the streets, and enlisted the support of politicians. This was followed by what Weart describes as ‘a comprehensive gathering of experts from 14 nations’ in Stockholm in 1971. This was the first major conference to focus entirely on a ‘Study of Man’s Impact on Climate’. Though there was no consensus on what was likely to happen, the report of the conference concluded with a ‘ringing call

for attention to the dangers of humanity's emissions of particle pollutants and greenhouse gases' and the possibility that the climate could shift dangerously in the next hundred years due to human activities.

According to Weart: 'These sober experts were adopting and endorsing the new attitudes that drove the environmentalist movement. The report's epigraph was a Sanskrit prayer: "O Mother Earth... pardon me for trampling on you."' [8]

Apocalyptic visions of a world destroyed through climate change were being entertained elsewhere in the Western world. For example, in 1977 Lord Zuckerman, chief scientific adviser to the British government from 1965 to 1969, wrote the following passage in the foreword to a book on the perils of climate change by a leading British diplomat, Crispin Tickell: 'Man's present political problems are minuscule in relation to what could result from major changes in climate, and someone from outer space, viewing our globe in the units of geological time, could well suppose that nations of today behave like people who quarrel violently and murderously over immediate trivialities on the fiftieth floor of some huge Modern Tower of Babel, oblivious of the fact that it is blazing away merrily below them.'

The message is clear: the world of politics and the matters it deals with are trivial and brutish compared to the importance of Nature. Zuckerman concludes his foreword with a prayer that 'the day will soon dawn when the current disputes and turmoil of national and international politics sink into the proper perspective of time', when we realise that 'nature itself has been responsible for far more significant changes in the physical world within which living beings have evolved than any for which we, the human species, have been or are likely to be responsible.' [9]

So the science of climate change grew out of a time when a considerable cultural shift was underway, when optimism about what science and technology had to offer was challenged by increasing concerns that the arrogance of human social and economic development was leading to negative environmental impacts, and even direct threats to the planet itself. This broader context is key to understanding the process of politicisation that then took place around the global warming issue.

3. SCIENTIFIC ACTIVISTS

The 1970s is widely understood as a time of growing disillusionment with mainstream politics. From the lingering impact of Vietnam, Watergate and the Iranian hostage crisis in the US, to the more generalised impact of global economic crises and fears about oil supplies in the Western world, the standing of politics was at a low ebb.

Such disillusionment with mainstream politics, expressed through declining voter turnout and the rise of single-issue movements, was also expressed in the actions of some climate scientists who, as is clear from Weart's book, decided to step outside of the normal conventions of science to get their concerns across. According to Weart, during the 1970s, 'a few scientists took the prospect of climate catastrophe so seriously that they felt they should make a personal effort to address the public directly', whereas 'most scientists felt that any definite statement about climate change was premature'. One of the scientists who did go direct to the public, writing a popularising book with his wife titled *The Genesis Strategy: Climate and Global Survival*, was Stephen Schneider. Schneider became a well-known commentator on climate change as well as a key IPCC author.

Weart describes Schneider as 'one of the scientists least shy about warning of climate dangers'. He also describes how the editors of the *New York Times* followed the advice of their veteran science writer Walter Sullivan, who began listening to Schneider and James Hansen, located at a NASA institute in New York City. In 1981, Hansen sent Sullivan a scientific report he authored, prior to its publication in the journal *Science*, announcing that the planet was getting noticeably warmer and 'for the first time the greenhouse effect made page one of the *New York Times*'.

Getting the message out directly to the public had clearly become a key imperative for a minority of scientists. For Hansen, it would appear, there was no time to await the wider response and reaction of the scientific community to his paper before broadcasting his message via the press. Over the course of the 1980s, this kind of scientific activism was given a platform and an institutional form through a number of international conferences conducted under the auspices of supranational institutions.

The 1980s was a critical period for the politics of climate science and the formation of the IPCC. One interesting account of the period is provided by a paper published in 1997 by Wendy Franz, then an academic at the Kennedy School of Government, Harvard University. Franz notes how the first World Climate Conference organised by the World Meteorological Organisation in 1979 'called on all nations to unite in efforts to understand climate change and to plan for it, but it did not call for action to prevent future climate change'. A subsequent conference in Villach, Austria, in 1980 organised jointly by the United Nations Environment Programme (UNEP), World Meteorological Organisation (WMO) and the International Council for Science (ICSU) also concluded that the potential threats were sufficient to warrant an international programme of co-operation in research but that, due to scientific uncertainties, the development of a management plan for CO₂ would be premature. A follow-up assessment was programmed for 1985, again to take place in Villach.

The Villach conference of October 1985 is widely credited with being critical to the placing of the climate change issue firmly on the international political agenda, and to the subsequent establishment of the IPCC—because at this conference the scientists concluded that the need for government action was far more urgent than they had previously thought. According to a joint statement put out by the three organising bodies, the conference concluded: 'As a result of the increasing concentrations of greenhouse gases, it is now believed that in the first half of the next century a rise of global mean temperature could occur which is greater than any in man's history.' The conference statement maintained that: 'While some warming of climate now appears inevitable due to past actions, the rate and degree of future warming could be profoundly affected by government policies on energy conservation, use of fossil fuels, and the emission of greenhouse gases.'

Interestingly, the conference statement also sought to tie in the issue of climate change with other high-profile environmental issues of the day: 'Climate change and sea level rises due to greenhouse gases are closely linked with other major environmental issues, such as acid deposition and threats to the Earth's ozone shield, mostly due to changes in the composition of the atmosphere by man's activities. Reduction of coal and oil use and energy conservation undertaken to reduce acid deposition will also reduce emissions of greenhouse gases, a reduction in the release

of chloro-fluorocarbons (CFCs) will help protect the ozone layer and will also slow the rate of climate change.' [10]

Franz points out that these conclusions were far bolder than any that had gone before, and stood in stark contrast to the conclusion of a US National Research Council report, published just two years earlier in 1983, which 'advocated "caution not panic", and weighed in against the development of policies to limit CO₂ emissions' [11]. She also raises the question of why the conclusions were so different to those reached at the Villach 1980 conference, which 'were significantly more cautious, urging more research, rather than policy development'. According to Franz's analysis, while the 1985 Villach conference 'benefited from the appearance of an important 1985 paper by Ramanathan et al, which provided compelling evidence for the claim that other greenhouse gases could be as important as CO₂', the bolder conclusions reached by the conference could not really be explained by new science.

Franz argues that 'the substance of scientific conclusions *were not* significantly different from prior assessments' (emphasis in the original) but that 'the *conclusions* that the scientists reached *based* upon the scientific analyses *were* significantly different' (emphasis in the original) [12]. So then, as Franz asks, 'why did this group' reach 'different conclusions than those of its predecessors, taking the leap into the policy/political arena?'

According to Franz's analysis, several factors were likely to have been important. One was the 'absence of domestic political constraints on the conclusions reached by this body', and the fact that 'the call for policy recommendations was strongly made by the sponsoring agencies'—the UNEP, WMO and ICSU—who had selected the scientists to attend the conference 'in their personal capacities, not as representatives of their governments'. Eighty-nine scientists from 29 developed and developing countries attended the conference. Franz notes that the group gathered at Villach was not only composed of scientists concerned with 'climate change, atmospheric chemistry, and meteorology' but biologists, other natural scientists and engineers who were 'more inclined to consideration of the practical implications of scientific findings' and, having 'not been deeply involved with climate science', were 'surprised by the findings, and the implications for the speed with which changes in climate change could occur'.

Franz's insight, that the scientists selected to attend the Villach 1985 event were chosen by the sponsoring bodies and encouraged to make policy recommendations, while acting in an individual capacity, is useful in understanding the speed at which the global warming dynamic spread. Given authority by supranational bodies such as the UN, but unaccountable to their own national governments, a handful of scientific activists could make a disproportionate impact upon the debate, and make policy recommendations outside of the constraints of policy and practicality.

This trend towards 'international' policymaking, where the authority of national governments is diminished in relation to institutions such as the United Nations or the European Union, is evident today whenever a controversial issue arises, from the legitimacy of the Iraq war to the development of genetically modified (GM) crops or any number of issues related to the human rights agenda. The process of appealing over the heads of national governments to these more remote, yet powerful,

bureaucracies raises a number of questions about democracy and accountability [13]. The scope of such bodies to involve activists at the same level as representatives of national governments has also been well noted. For example, as the journalist Brendan O'Neill [33] has argued, such was the influence of the ageing rock star and self-appointed 'voice of Africa', Bono, on the 2007 G8 summit that the summit should really have been held under the auspices of the 'G9'.

Franz further notes that another major factor influencing the Villach 1985 conference was the successful negotiation of the Vienna Convention for the Protection of the Ozone Layer in March 1985. Based on her interview with Peter Usher, then a major representative of the UNEP in the ozone negotiations, she notes that the UNEP, in particular its executive director Mostafa Tolba, 'were encouraged by their success in negotiating the ozone agreement, and had determined that a convention on climate change could be their next endeavour'. Again, recounting her interview with Peter Usher, Franz notes: 'Tolba and the scientists involved in the Villach meetings saw a window of opportunity, through which they could push climate change.'

While the Villach 1985 conference focused on CO₂ and other greenhouse gases, Franz notes that subsequent to the conference the focus remained 'almost exclusively on CO₂ and fossil fuel reduction'. She therefore concludes that explanations for the bold position taken by the conference 'rest largely on the nature of the scientific community that was created at the meeting, and by the timely and advantageous connections to ozone'.

Others have similarly noted the special nature and standing of events at Villach in 1985. Ronald Brunner, in his paper 'Science and the Climate Change Regime', argues that 'among the factors that catalysed public concern and transformed global warming into a political issue' were 'a number of scientists and non-governmental organizations (NGOs) who acted as entrepreneurs, promoting the climate change issue through conferences, reports and personal contacts'. According to Brunner 'the conference held at Villach...was among the most important' and 'sought to represent scientific advice independent of governments' [14] (my italics).

It is clear from the report of the conference that by this point 'scientific advice' had shifted from advice about the state of scientific knowledge to political and policy advice about what should be done.

4. 'A MOOD OF POLICY ACTIVISM'

In July 1986, as a consequence of the Villach 1985 conference, the UNEP, WMO and ICSU established an advisory panel—the Advisory Group on Greenhouse Gases (AGGG)—to fulfil the conference's call to 'ensure the appropriate agencies and bodies follow up the recommendations of Villach 1985' and 'initiate, if deemed necessary, consideration of a global convention' [15]. According to Shardul Agrawala, in his paper 'Context and Early Origins of the Intergovernmental Panel on Climate Change': 'the hastiness with which the body was set up in the euphoria following Villach 1985 resulted in several major design flaws which were later to prove its undoing.' [16]

Agrawala reports 'a mood of policy activism' during this period, with two interlinked workshops held in Villach and Bellagio in 1987 'under AGGG auspices,

even though many over-committed AGGG members had limited input or control over them'. According to Agrawala: 'Many participants at these workshops believed that despite prevailing uncertainties, aggressive policy action was needed on climate change.'

Some were also keen to mobilise to achieve this objective and engage a wider audience. One of the more audacious individuals, according to Weart's account, was the aforementioned James Hansen. Weart reports that prior to the summer of 1988 'global warming had been generally below the threshold of public attention' but that changed with a series of heatwaves and droughts—'the worst since the Dust Bowl of the 1930s'—which Hansen took advantage of to make his arguments [17].

As Weart points out 'scientists knew that no individual weather event could be traced to global warming' but Hansen 'raised the stakes with deliberate intent' by arranging with Senator Timothy Wirth to testify at a Congressional hearing in late June, 'deliberately choosing the summer, although that was hardly a normal time for politicians who sought attention'. Hansen told Congress that 'there was a long-term warming trend underway, and he strongly suspected that the greenhouse effect was to blame', and he and like-minded scientists testified that global warming could bring more frequent storms and floods as well as life-threatening heatwaves. Hansen apparently told reporters afterwards that it was time to 'stop waffling, and say that the evidence is pretty strong that the greenhouse effect is here', and later recalled that he had 'weighed the costs of being wrong versus the costs of not talking' and decided that he had to speak out [18].

The interest Hansen generated in the media was also well-timed with regard to a major conference held in Toronto at the end of June 1988 organised by scientists involved with the Villach and Bellagio workshops of 1987. This conference brought together 341 delegates, including 20 politicians and ambassadors, 118 policy and legal advisers and senior government officials, 73 physical scientists, 50 industry representatives and energy specialists, 30 social scientists and 50 environmental activists from 46 countries. Franz notes that the conference's call to reduce CO₂ emissions by approximately 20 per cent of 1988 levels by 2005 fell far short of the 66 per cent reductions in CO₂ emissions recommended by the Villach and Bellagio workshops of 1987, and concludes that 'the contribution of science to this outcome was minimal' [19].

According to Stephen Schneider, the 'activist' scientist, the Toronto conference 'attracted so many reporters that extra press rooms had to be added to handle the hordes of descending journalists'. The conference's conclusions were widely reported in the world's press. A leader article in *The Times* (London) on 2 July 1988 said, 'The summit declaration, however imprecise, has to be welcomed', noting 'a clear lack of symmetry' between the cataclysmic predictions of scientists and the 'indifference with which they have been generally received' by governments. Weart argues that media coverage of climate change was so extensive in the USA that a 1989 poll found that '79 per cent of Americans recalled having heard or read about the greenhouse effect', compared to 38 per cent in 1981 [20].

Many scientists were critical of the approach taken by Hansen and others for damaging the integrity of science. According to Weart, 'respected scientists publicly

rebuked Hansen, saying he had gone far beyond what scientific evidence justified' [21]. But Hansen and other scientists involved with the 'activism' of the 1980s clearly saw things differently. For them, despite ongoing scientific debates and uncertainties (and Hansen's own assertion that the signs of man-made climate change would not be detectable until around 2000), they had seen the warning signs of man's destructive impact on the planet and were on a mission to save the planet from man-and man from himself. Raising the full facts, as they were then known, with national governments and other bodies, was not sufficient for these scientists. After all, who could trust politicians to make decisions about issues of this magnitude? For the sake of the planet, it would seem that generating scary media stories that even Schneider admitted had 'very little scientific content' was justified in order to get the attention of politicians and gain the moral upper hand.

5. A CLIMATE OF RECEPTIVITY

Interestingly, Hansen had made similar comments about the threat of climate change to Congress in 1986 and 1987 to little effect. However, the extensive coverage of his comments to Congress in 1988, and of the subsequent Toronto conference, can hardly be explained simply by the fact of the exceptionally hot summer of that year.

Throughout the 1980s, a broader receptivity to environmental concerns had been growing. Phil Macnaghten and John Urry, in their book *Contested Natures* [22], note how in the UK during the mid-1980s 'a number of Tory backbenchers...started writing pamphlets on the environment', helping to 'extend the environmental agenda from an unlikely source'. They also point out how 'a cultural lifestyle began to emerge comprising vegetarian diets, concern for animals, wholefood shops, open-air festivals, cycling, hiking and rallies'. Issues such as acid rain were high on the agenda and the explosion of the nuclear reactor at Chernobyl in May 1986 generated mounting public concern. Ozone also achieved high public prominence when the Montreal Protocol to phase out CFCs was signed in September 1987 by 29 countries and the European Economic Community (EEC-forerunner of the European Union); 1987 was also the year that the high-profile Brundtland Report, *Our Common Future*, helped to promote the concept of sustainable development to the media and politicians alike.

At the same time, the thawing of the Cold War and the fading threat of nuclear war was clearly visible with the Reykjavik (Reagan-Gorbachev) summit of October 1986, Margaret Thatcher's visit to the USSR in March 1987 and Gorbachev's announcement of Soviet withdrawal from Afghanistan in February 1988. This marked the end of an era of clear-cut politics, where left and right battled out their opposing visions of how society should be organised. Thatcher's famous pronouncement that 'There Is No Alternative' to the market articulated this political transformation and what it meant for both sides. The left had lost its project of social change, and the right, in the absence of its historical enemy, found itself having to defend capitalism on its own, rather dubious, terms.

What would define the new era? As Daniel Ben-Ami has argued, the idea of the need to place limits on human activity was well-established in the 1970s and given credence by a dying left-wing movement, which increasingly embraced environmentalism as its faith in social progress waned [23]. However, a defining

feature of the late 1980s was the idea of precaution, which arose, according to Ben-Ami, as the end of the Cold War and the rise of the idea that there is no alternative to the market consolidated a 'sense of profound social pessimism' in which human potential became viewed more as a 'threat rather than a positive attribute'. The orthodoxy of precaution 'emphasised not only the actual damage being done to the environment but potential threats in the future'. This is precisely how the global warming issue was framed by certain scientists and latterly latched on to by environmental campaign groups that had paid little or no attention to it prior to the late 1980s.

Politicians became highly receptive to claims of future danger. By the late 1980s, Margaret Thatcher, then prime minister of the UK, was eager to demonstrate the seriousness with which she took environmental issues in general and climate issues in particular. In September 1988, she gave a much-publicised speech to the Royal Society in which, citing concerns over global warming, the ozone layer and acid depositions, she stated: 'For generations, we have assumed that the efforts of mankind would leave the fundamental equilibrium of the world's systems and atmosphere stable. But it is possible that with all these enormous changes (population, agricultural, use of fossil fuels) concentrated into such a short period of time, we have unwittingly begun a massive experiment with the system of this planet itself.' She concluded the speech arguing that 'stable prosperity can be achieved throughout the world provided the environment is nurtured and safeguarded', and 'protecting this balance of nature is therefore one of the great challenges of the late twentieth century'.

In the United States, despite disagreement among different state organisations about the seriousness of the threat of global warming, there was also a clear desire to act and gain some control of the issue. Indeed, it was the United States, as Agrawala details [25], which initiated the process to set up the IPCC through the UNEP and WMO as early as 1986—well before the extensive media coverage of the summer of 1988. In June 1987, a WMO Executive Council resolution to establish, in co-ordination with the UNEP, 'an intergovernmental mechanism to carry out internationally coordinated scientific assessments of the magnitude, impact and potential timing of climate change' was passed and welcomed by the UNEP.

According to Agrawala, due to its 'cumulative expertise' in climate change research, its position as 'the biggest contributor of greenhouse gas emissions', and 'being the biggest financial patron of the UN system', the USA played a key role in instigating this process and insisting on a role for official experts. 'The trigger for the IPCC', Agrawala states, 'was the activism by Mostafa Tolba [executive director of the UNEP], the dissatisfaction in the US about the AGGG, and sharply differing views on climate change amongst various US government agencies and the White House administration'. Agrawala argues that by insisting on an intergovernmental mechanism the United States secured a role for official experts while also achieving the political goal of engaging governments worldwide in climate change decision-making. The IPCC was established in November 1988 jointly by the WMO and the UNEP—two of the three international organisations that had organised and encouraged scientists to enter into the arena of politics and policy at the Villach conference in 1985.

Whatever elements of compromise were involved, or disagreements over the precision of scientific knowledge at that time, the establishment of the IPCC reflected the coming together of politics and science around the issue of climate change. This is particularly striking considering that in the mid-1970s, according to Weart, ‘it would have been hard to find a hundred scientists with high ability and consistent dedication to solving the puzzles of climate change’ [26]. The swift emergence of climate change as a political issue, it seems clear, owed as much to the powerful cultural and political trends of the 1970s and 1980s as to the science of the matter at hand. Twenty years on, the political sphere has continued to implode and cultural pessimism has grown. These factors, entirely external to whatever the realities of climate change might be, have a major impact on how the issue is framed.

6. CHALLENGING THE CONSTRAINTS OF THE CLIMATE CHANGE DEBATE

From very early on, the relationship between science and politics around the climate change issue has been an unhealthy one, and this has had a negative impact on both the scientific and political spheres. With regard to science, it seems obvious that its objectivity is open to question once science becomes allied with advocating what should be done rather than telling us what is currently known and what the complexities and uncertainties involved with that knowledge are. Yet today, in pursuit of achieving the action on climate change that they think is right, it is striking how many in the scientific community have become extremely intolerant of dissent.

For example, the UK’s premier scientific academy, the Royal Society, has been at the forefront of policing what it regards as the scientific consensus on climate change. In September 2006, the Royal Society wrote an open letter to ExxonMobil demanding that the oil giant cut off its funding to groups that have ‘misrepresented the science of climate change by outright denial of the evidence’ [27]. Explaining this action by the Society to the UK’s *Guardian* newspaper, Bob Ward, author of the letter, said: ‘It is now more crucial than ever that we have a debate which is properly informed by the science. For people to be still producing information that misleads people about climate change is unhelpful. The next IPCC report should give people the final push that they need to take action and we can’t have people trying to undermine it.’ [28] This rather sinister notion of science giving people ‘the final push they need to take action’ shares the same assumptions that informed the activities of Hansen and others in the 1980s—that politicians and the public are not to be trusted to hear all views about the complexities and uncertainties of climate science because it will only lead them, selfishly and short-sightedly, to choose not to act in the way ‘they should’.

Hans von Storch, director of the Institute for Coastal Research of the GKSS Research Centre in Germany and professor at the Meteorological Institute of the University of Hamburg, has written persuasively about his concern that science is being misused in the public debate about climate change to the detriment of science itself. Writing in *Der Spiegel* in January 2005, von Storch argued that while ‘climate change caused by human activity is an important issue’ we have arrived at a situation where ‘each new claim about the future of our climate and of the planet must be just a little more dramatic than the last’. According to von Storch, public expression of reservations by scientists about ‘climate

catastrophe' are 'viewed as unfortunate within the scientific community, since they harm the "worthy cause"'. This, he argues, threatens to undermine science in an important way:

'This self-censorship in the minds of scientists ultimately leads to a sort of deafness toward new, surprising insights that compete with or even contradict the conventional explanatory models. Science is deteriorating into a repair shop for conventional, politically opportune scientific claims. Not only does science become impotent; it also loses its ability to objectively inform the public.'

The IPCC is keen to disassociate itself from the idea that it is telling us what to do, emphasising that its work is 'policy relevant' not 'policy prescriptive' [30]. However, its infamous consensus-based approach seems geared towards narrowing the terrain for political and public debate. Once the scientists have drafted their reports, they are circulated to government officials of all the countries involved. The scientists and officials come together to agree, line-by-line, the wording of each summary report for policymakers. Rajendra K Pachauri, the current chair of the IPCC, described the significance of this process at the press launch of the Working Group I Report *The Physical Science Basis* in February 2007:

'It is essentially the scientists and the experts who are the ones who assess and provide the knowledge but this is something that is discussed and debated by the governments and since we accept everything by consensus this has the implication that whatever is accepted here has the stamp of acceptance of all the governments of the world.' [31]

Once the IPCC has spoken it clearly expects there to be little scope for further debate. That such a constraining and technical 'line-by-line' process is accepted by so many as a useful or necessary approach speaks volumes about how neutered politics has become—apparently everyone must sign up to an agreed version of the latest 'science' before any debate or discussion can begin.

One historical account of the setting-up of the IPCC refers to it as a scientific issue 'born in politics'. But the history of climate change might be more usefully understood as a reaction to politics, and shaped as much by a distrust of politics than it has been by science. Ostensibly, the establishment of the IPCC, in which the USA clearly played a key role, accepted the issue of climate change as primarily a scientific one. At a time when the Western world had become increasingly pessimistic about man's impact on the world, when politicians had little to offer and technocratic management of issues was in the ascendancy, the framing of the issue of climate change as essentially one of science decoding 'nature's message' about humanity's destructive actions was widely accepted.

What should have been an issue to be debated and discussed politically, informed but not dictated by the best available science, has become framed as primarily a scientific issue about learning to appreciate the limits that nature has set for human activity. As events have unfolded since the formation of the IPCC, the issue of climate change has been transformed into a moral crisis for society and turned into an illiberal campaign that constantly berates individuals about the need to modify their behaviour and reduce their 'carbon footprint'. This moral agenda is something that the IPCC—a body that prides itself on its scientific credentials—has proved ever more willing to promote. For example, speaking at the press launch of the Working Group III Report *Mitigation of Climate Change* in May 2007, Pachauri stated boldly:

‘It is of great satisfaction that this report for the first time has dealt with lifestyle and consumption patterns as an important means by which we can bring about mitigation of greenhouse gas emissions. So of course you can look at technologies, you can look at policies, but what is an extremely powerful message in this report is the need for human society as a whole to start looking at changes in lifestyle and consumption patterns.’ [32]

An overtly moralistic message, that emphasises behaviour change over technological innovation, is delivered without criticism from any quarter, by a body whose authority is ultimately rooted in the collapse of politics.

From the moment the IPCC was born, the scope for an overtly political approach to dealing with any questions raised or problems thrown up by climate change was compromised by politicians with little vision for society, who became increasingly attracted to the notion of ‘natural limits’ as a justification for political and economic stasis. As political convictions have withered, politicians and activists of all persuasions have come to present their arguments in terms of what ‘the science’ is telling us to do. Even Al Gore, who is seen as almost evangelical about what he describes as a ‘climate crisis’, presents his argument in morally weak terms as an ‘inconvenient truth’ brought to us by the work of scientists.

The way in which politicians, the media and civil society have come to hang on the latest pronouncements of the IPCC demonstrates how this political failure has allowed a scientific conceptualisation of a political problem to become institutionalised across the globe, to the point where conceiving of it differently has become almost unimaginable. But imagine it we must, if we are to open a genuine debate about the politics, and science, of global warming.

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