

## Book reviews

### *Three books on climate change*

*The Inquisition of climate science.*  
James Lawrence Powell. Columbia University Press, New York. July 2011. xiii +232pp. ISBN 978 0 231 15718 6 (cloth), \$NZ34.57; ISBN 978 0 231 15719 3 (paper) \$NZ27.21; Kindle (ebook), ASIN B005FLRAW0, \$17.17, 837 KB.

The cover blurb says “[This] is the first book to comprehensively take on the climate science denial movement and the deniers themselves”. This is not strictly true as it post-dates *The Merchants of Doubt* by Orskes and Conway (reviewed in *Weather and Climate* Vol 32(1)). It is written by an academic scientist trained as a geochemist who acknowledges that he also writes science books for the general reader. He sets out his credentials in the Preface admitting he is not a climate researcher but pointing out that both Presidents Reagan and Bush appointed him to the US National Science Board. The book is written clearly for an American audience and readers need to be *au fait* with the predilections of American politicians. A brief summary can be found in Wikipedia (2013) but both Reagan and Bush were at very best climate change skeptics. The book has 17 chapters that are very unequal in length and this reviewer wondered how much planning actually went into it. The first three chapters set the background, the next three describe the background to global warming, and the rest of the book is basically describing, analysing and

refuting the arguments put forward by the deniers. This large last part (over half the book) is split by a couple of chapters on the oil and insurance industries and on the American media.

The Introduction sets the adversarial scene: science has been attacked by right wing journalists aided and abetted by politicians like Senator Inhofe and Viscount Monckton of Brenchley in both the United States and the United Kingdom who consider global warming a hoax. He compares the outcome of two conferences held in December 2008 and March 2009 in Chapter 1. The first was a meeting of the American Geophysical Union where scientists regarded global warming as a fact and had an invited lecture by James Hansen. The second was sponsored by the Heartland Institute where speakers insisted that global warming was a hoax aimed at transferring wealth from people to the government. Chapter 2 is a critique of the presentation by Terry Dunleavy at the 2009 Heartland Conference criticising the IPCC Fourth Assessment Report. Dunleavy is described as “a congenial, 80-year-old New Zealand wine grower and self-professed non-scientist” and is better known in New Zealand for his participation in the (losing) legal action against NIWA in 2012. (The court judgement can be found at:

[http://www.courtsofnz.govt.nz/cases/nz-climate-science-education-trust-v-niwa-ltd/at\\_download/fileDecision](http://www.courtsofnz.govt.nz/cases/nz-climate-science-education-trust-v-niwa-ltd/at_download/fileDecision).)

We are also enlightened about the OISM - the Oregon Institute of Science and Medicine - located in a warehouse in a small town with a population in 2012 of 1,875 which is a source quoted by Dunleavy. The next chapter (Chapter 3) is devoted to Viscount Brenchley, who was in New Zealand in April 2013, a columnist for the *New York Times* (John Tierney), and the science fiction writer Michael Crichton who died in 2008. It is pointed out that Brenchley was a policy advisor to UK Prime Minister Margaret Thatcher but has no scientific credentials or publications. He does have a Cambridge classics degree and a Cardiff diploma in journalism and his peerage is hereditary. Tierney has a history of anti-environmentalism while Crichton is quoted as saying (in 2003) that “environmentalism...is the religion of urban atheists”. Having clearly explained the opposition Powell moves on to describing the discovery of global warming in Chapter 4 mentioning on the way Tyndall in 1861, Arrhenius in 1896, Callendar in 1938, Revelle in 1957 and Keeling in Hawaii (the beginnings of the Mauna Loa sequence) in 1959. The next chapter (Chapter 5) describes the greenhouse effect through the models in the IPCC Assessments 1 to 4. It was perceived as a curiosity in the 1960s but President Lyndon Johnson in 1965 was clearly concerned and by 2013 it had evolved into a global threat. The conservative language of the IPCC Assessments moving from “the earth was warming” (AR1,1990), through “a discernible human influence” (AR2,1995), “humans had caused” (AR3,2001), to “very likely (90% probable) that humans were causing”

(AR4,2007) is noted. Now that the 5<sup>th</sup> Assessment Report (AR5,2013) has been published the language is even clearer:

*“There is a clear human influence on the climate. It is extremely likely that human influence has been the dominant cause of observed warming since 1950, with the level of confidence having increased since the fourth report”.*

The chapter ends with the remark that as the IPCC’s conclusions have strengthened over the years “the deniers, unable to refute the panel’s science, have made an all-out effort to discredit the panel and its members”. A three page Chapter 6 reproduces a version of Mann’s ‘hockey stick’ graph but the explanation is poor. This chapter is now out of date given the temperature data that has become available since it was written and the conclusions of AR5.

Powell moves onto the attack again in Chapter 7 (‘Tobacco Tactics’, 19 pages) where he lists the major science deniers. The first is S. Fred Singer with an engineering and physics background who has been involved in a number of denier campaigns. He founded the Science and Environmental Policy Project (SEPP) in 1990 funded by Exxon, Shell, Unocal, ARCO – all multinational oil companies – which created ICSE (International Centre for Scientific Ecology) in Paris and is headed by Michel Saloman, a science journalist. Both these organisations followed the pattern, begun by the tobacco corporations, in seeming to be legitimate think tanks but attacking their opponents such as the IPCC. Patrick M.

Michaels has a PhD in ecological climatology and is editor of the *World Climate review* a blog and newsletter funded by the Western Fuels alliance. He has also written several books attacking global warming. The late Fred Seitz had a long background in helping various big businesses in their campaigns and he also endorsed an anti global warming petition organised by OISM. Richard Lindzen is professor of meteorology at MIT who cut his denier teeth on the second hand smoking campaign before moving on to denying global warming. He wrote in the *Wall Street Journal* 11 April 2006 that “scientists who dissent from alarmism have seen their grant funds disappear, their work derided... and labelled as industry stooges”. So is it alright to take money from industry if you sing the correct song? The next denier in this chapter is ‘Jack’ Schmitt, former astronaut and republican senator who spoke at the 2009 Heartland Conference and is emeritus chairman of the now defunct Annapolis Center for Science-based Public Policy think tank. The last two deniers portrayed in this chapter are Freeman Dyson, a English mathematician and life-long contrarian and skeptic as far as global warming is concerned, and Timothy Ball, a Canadian geographer and environmental consultant. Chapter 8 (20 pages) continues the attack by concentrating on the non-scientists two of whom have been mentioned before (in Chapter 3): Michael Crichton, Viscount Monkton, George Will (philosopher and Pulitzer Prize winner), Bjorn Lomborg (Danish political scientist and welfare economist). The chapter considers

Crichton’s best seller *State of Fear* (2004) and Monkton’s incursion into the global warming debate via some articles in the English *Telegraph* (Monkton, 2006). George Will came to prominence in an article in the *Washington Post* ‘Dark Green Doomsayers’ (Will, 2009) which caused an Internet furore because of the mix-and-match snippets he used. Lomborg (2001) is best known for his book *The Skeptical Environmentalist* which be-came a best seller although it produced almost universal criticism from scientists. Having dealt with science deniers and the non-scientists Powell then moves on to the conservative think tanks (Chapter 10) that have appeared: Global Climate Coalition (1989), Heartland Institute (1984), George C Marshall Institute (1984), Competitive Enterprise Institute (1984). The workings and background of each is carefully described and so are their various publications some of which are distributed free. This chapter is a good example of how careful one needs to be when searching the Internet.

We get a break from the blasting of the deniers in the next two chapters. First the oil industry, in the form of Exxon is compared to the insurance industry. The former is well known for funding a variety of denier organisations and lobbying politicians. The latter cannot afford to get global warming wrong as it is costing them money – in the second half of the 20<sup>th</sup> century as a temperatures rose so did insurance losses. Munich Re, a reinsurance giant, was the first to be worried by global warming in 1973. In Chapter 11 the American media is dissected and he quotes from the analysis of Boykoff and Boykoff (2004). They found a

marked change in the emphasis on the reporting of global warming and the “adherence to the norm of balanced reporting leads to informationally biased coverage of global warming” between 1980 and 2002. Incidentally, readers interested in press coverage of global warming would find this analysis of ‘prestigious’ American newspapers quite interesting. He goes on to describe the ways in which the political establishment and the denier media have moved the goalposts under the guise of ‘balanced reporting’.

The attack on the deniers is continued in the next five chapters. In Chapter 12 he returns to one of his basic themes – attack the science: global warming is all natural, the amount of emitted CO<sub>2</sub> is too small, temperatures are biased by location (urban heat islands), the ‘hockey stick graph’ is a statistical misrepresentation, the Medieval Warm Period is only a regional phenomenon, climate models are too inaccurate, does CO<sub>2</sub> drive temperature or vice versa, sea ice, tropospheric vs stratospheric temperatures. In the next chapter he discusses the claims by Senator Inhofe in Senate in 2005 and 2009 that “catastrophic global warming is the greatest hoax ever perpetrated on the American people”. He continues by dissecting (American) federal funding to universities directly and via the military in the 2000s. Chapter 14 describes “Climategate” and the hacking and misinterpretation of private emails followed by a total vindication of the Climate Research Unit and its personnel by two reports undertaken by the University of East Anglia (one under the auspices of the Royal

Society) and one by the British House of Commons. A report of the latter is available at our own global warming website “Hot Topic (<http://hot-topic.co.nz/jones-and-cru-exonerated-by-parliamentary-inquiry/>) dated March 2010. The chapter concludes with some other “gates” – carbongate, glaciergate and Amazongate. “Anatomy of Denial” is the title of Chapter 15 and describes the tactics used by deniers and what motivates them. He compares deniers to creationists who have resorted to legislation and the judicial system in the penultimate chapter; at least in New Zealand we have only experienced the latter (NZ Climate Science Education Trust v NIWA) referred to earlier (see also <http://hot-topic.co.nz/cranks-lose-court-case-against-nz-temperature-record-niwa-awarded-costs/> dated September 2012). In his final chapter (Chapter 17) Powell asks that the reader trusts ‘science’ by which he means the science portrayed by the majority of scientists rather than that used by the deniers.

This is a totally biased book written mainly for an American audience. But it is an extremely useful addition to the literature in dissecting the world of the climate deniers who have set up “an industry of climate science denial [which] is succeeding: public acceptance has declined even as scientific evidence for global warming has increased”.

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*Global Warming and Political Intimidation: How politicians cracked down on scientists as the earth heated up*. Raymond S. Bradley. University of Massachusetts Press, Amherst. July 2011. Xii + 167pp. ISBN978-1-55849-869-3 (paper). \$24.67; Kindle (ebook) (January 2013), ASIN B00BERRRNQ, \$9.98, 1594 KB.

This book is written by one of the authors of the article containing the famous 'hockey stick graph' (Mann et al 1998 and 1999, MBH98 and MBH99)). The three authors were a statistician, a palaeoclimatologist and a dendrochronologist who amalgamated a large data set based on measurements and proxy data to construct temperatures back to AD1400 in the first paper and to AD1000 in the second. Each of the three have been lauded and vilified since these papers were published. The graph's claim to fame is due to its inclusion in AR3 (IPCC, 2001). This book is the response of Ray Bradley (the palaeoclimatologist) and concentrates on the pressures they were put under by the American political establishment. The scene is set in the Prologue that describes his work and the furore that followed the publication of the first paper. Chapter 1 describes the American Congressional Hearings he attended and gave testimony at in 2000 and 2005. The first was the Senate committee on Commerce, Science and Transportation headed by Senators McCain (republican) and Kerry (democrate). The second was the Senate committee on Environment and Public Works headed by Senator Inhofe who invited the science fiction author, Michael Crichton to testify. This was

described by Senator Hilary Clinton: "Mr Chrichton's critiques of climate change science appear in a work of fiction. His views have not been peer reviewed". The next two chapters discuss the 'hockey stick controversy'. The three authors received a letter from the House of Representatives House Committee on Energy and Commerce (Representative Barton) and its subcommittee on Oversight and Investigations (Representative Whitfield), based on an article published in *The Wall Street Journal*, 14 February 2005 (Regalado, 2005) describing papers by McIntyre and McKittrick (2003, 2005; both available at <http://www.multi-science.co.uk/mcintyre-mckittrick.pdf>) and seized upon by the denier *Journal*. The MBH98 was not what the deniers and energy companies wanted to hear so they mobilised their political forces.

The controversy is described in a long (49pp) Chapter 3 and covers the proxy data used, the use of the graph in AR3 (devoid of all the limitations and uncertainties they had described) and the 'bungled' analysis by McIntyre and McKittrick. It also includes Bradley's, Hughes' and Mann's responses to the congressional letter and the intervention into the debate by Representatives Waxman and Boehlert (House Committee on Science) who told Barton "your committee lacks jurisdiction over this matter...[which] come under the purview of the House Committee on Science". This intervention put the controversy onto the front pages of newspapers all over America. The result was that the National Academy of Sciences became involved and set up a panel to look at the issues

surrounding climate change that concluded that the basic conclusions of MBH98 and MBH99 were "supported by an array of evidence". Barton was not yet finished and commissioned a team of statisticians, headed by Wegman (George Mason University) to evaluate the methods used. Wegman argued for a different baseline but then went beyond his remit by looking at all the papers and their coauthors produced by Mann, Bradley and Hughes and concluded they were all part cozy club incapable of making independent assessments. This was what Barton and Inhofe wanted because of they were totally opposed to legislation that might control greenhouse gas emissions.

Bradley then describes the workings of the IPCC, the attempts to destroy Ben Santer's reputation through the Global Climate Coalition and the papers by Seitz and Singer in *The Wall Street Journal* in 1996. Then the IPCC is awarded the Nobel Peace Prize in 2007 and in the same year the US Military accepts that "projected climate change poses a serious threat to America's national security" (CNA 2007; CNA Corporation is a non-profit security analysis organization). This naturally leads him to global warming in Chapter 5. He takes the reader through the difference between 'global warming' and 'climate change', temperature measurements, 30yr periods, homogenization, urban heat islands, the Mauna Loa and Vostok data sets, and Milankovich.

In Chapter 6 he reviews what has happened since the United Nations Framework Convention on Climate Change and the Kyoto Protocol in 1992. The Clinton Administration (Al

Gore) signed in 1998 but the Bush administration rejected it in 2001 and as a consequence the USA has slipped far behind the rest of the world in the realm of clean air technologies. He ends the book with a review of the Bush Administration 2001-2008 when “with a right-wing administration in place and Republicans controlling both houses of Congress, the stage was set for unrestrained exploitation of power.” He considers the implications of the hacking of the University of East Anglia’s mainframe that resulted in “Climategate”, freedom of information requests, the other “gates” that were raised by the deniers in their attempts to chip away at the edges of the problem and sow seeds of doubt. He ends with the attempted character assassination of Mann by Cuccinelli the attorney general of Virginia that was a wanton (but failed) attempt to undermine science. By the time we have finished the book one thing is clear – science and politics do not mix, unfortunately the politicians seem to have the edge as they often hold the purse strings.

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*The Hockey Stick and the Climate Wars: Dispatches from the Front Lines*. Michael E. Mann. Columbia University Press, New York. Kindle Edition (ebook): 2014, ASIN B0072N4U6S \$NZ 11.82, 1631 KB. Paperback: 2014, ISBN 978 0 231 52638 8, \$NZ24.67, 448 pp

Here we get the view of the statistician in the triumvirate who produced the 'hockey stick graph' (Mann et al 1998, 1999). This is his response to the controversy and was first published in March 2012 both as hardback and ebook; subsequently, in November 2013, a paperback version appeared which was updated with a Foreword in January 2014; this review is based on the ebook version of the latter. In the Prologue he explains his involvement in the controversy first through being a lead author in the IPCC Third Assessment Report on Climate Change (IPCC, 2001) (IPCC AR3) and secondly because the graph was used in the Report. He introduces the concept of the Serengeti strategy as applied to science by deniers and the reasoning behind using various palaeoclimate proxy data to work out pre-instrumental temperatures. Chapter 1 is mainly autobiographical setting the scene for his involvement. He describes the attacks on Ben Santer (1996), who was a lead author of a chapter in the IPCC Second Report (IPCC, 1996) (IPCC AR2), by Fred Singer, the Global Climate Coalition (funded by the fossil fuel industry) and Fred Seitz. He also gives some background to his teenage years and his interest in solving scientific problems. Chapter 2 describes climate change science in the 1990s just as he was entering



the field. The reader is introduced to Keeling curve and the Mauna Loa observations, the 'greenhouse effect' and its basic chemistry, warming since the dawn of industrialization, possible causal mechanisms (fossil fuels and sulphate aerosols), possible effects, and the six stages of climate change denial.

In Chapter 3 he discusses natural climatic variability: external (due solar and volcanic influences) and internal (due to oscillatory variations - decadal, interdecadal, multi-decadal). This brings him to the shortness of the instrumental record and the need to use palaeoclimate proxy data (tree rings, corals, ice cores, sediment cores) to take temperature variation back to AD1400. This put him and his co-authors into the middle of the Medieval Warm Period that was based primarily on Hubert Lamb's work in the 1960s (Lamb, 1965). Lamb used qualitative and anecdotal literary evidence to produce a temperature curve that reached back about 1000 years. Lamb produced temperature in 50-year blocks and his curve was used in the IPCC First Report in 1990 (IPCC AR1). But by the 1990s tree ring and ice core analysis could produce year-by-year chronologies and Chapter 4 describes 'the making of the hockey stick' first through the work of Bradley and Jones (1993) who produced a decadal temperature reconstruction back to AD1500 (used in the AR2), then through other work by Bradley and others in the 1990s who added error bars to indicate uncertainty. Mann entered the fray in 1996 with his postdoctoral research interest in producing year-by-year temperatures from proxy data using principal component

analysis that he explains for the lay reader. He describes the validation procedure used and the final publication of MBH98 (Mann et al, 1998) and how the 'uncertainties' in the title of MBH99 (Mann et al, 1999) were calculated. The intricacies of the writing and production of an IPCC Report are described to explain how the graph was finally incorporated into the AR3, linked to the word 'likely' that was attached to human influence on climate warming and had disputed "a sacred cow of climate change contrarianism: the medieval warm period".

Chapter 5 explains the origins of the denial movement by the fossil fuel industry coupled with a distaste for government regulation culminating in the Bush Administration (2000-2008) and the financing of 'anti' groups by industry culminating in what he calls the "climate wars". The influence of the Global Climate Coalition (formed in the late 1980s but disbanded in 2001 when British Petroleum defected), wealthy privately owned corporations and foundations (Koch Industries, Scaife Foundation), various media outlets (*Wall Street Journal*, *Daily Telegraph*, *Washington Times*, *Fox News*), individual deniers (Seitz, Jastrow, Nierenberg, Singer, Lindzen, Crichton, Monckton), 'The Oregon petition' (whose signatories apparently included a Spice Girl and a character from the TV series *MASH*), The Heartland Institute (Philip Morris, Exxon), and bloggers on the internet are all discussed in some detail together with the technique of 'swiftboating' or smear campaigns against individuals. Skepticism and the peer review process are outlined in the next chapter (Chap. 6) together with the

problem of anomalies – the data that doesn't fit. He discusses the problem of any relationship between El Niño and volcanic eruptions, and then reverts back to an attack on deniers who have manufactured controversy and their attempts to discredit the IPCC and its assessment processes. Here his ire is aimed at Tim Ball (Canada, the public face of Friends of Science), Monckton and McIntyre (both amateurs with no formal in key scientific areas). Mann moves on to the climate change debate and the problem of the medieval warm period in Chapter 7 where he touches upon pseudoproxy data, the problems of estimating long-term variability, and various articles attacking the 'hockey stick' concept by Michaels, Lindzen, and Singer.

The role of politicians makes up Chapter 8. The Bush administration with vice-president Cheney set up a task force in 2001 on energy (whose composition was secret) dominated by senior members of the fuel industries. Then there was the White House Council on Environmental Quality headed by Cooney (a lawyer with first degree in economics and a background as a climate change lobbyist for the American Petroleum Institute). Cooney did a lot of unilateral editing of various government reports in the early 2000s including the deletion of the hockey stick graph in the 2003 State of the Environment report and substituting reference to a paper by Soon and Baliunas (2003). In his critique of this paper Mann mentions our own Chris de Freitas. Next comes a detailed discussion of the Senate Environment and Public Works committee, chaired by Senator Inhofe, and its hearings in

July 2003 followed by the paper by McIntyre and McKittrick (2003) both put into the context of contrarian politics. In Chapter 9 it is the contrarian media that are exposed: Regalado (*Wall Street Journal*, Feb 2005), and the bloggers. After carefully refuting *again* the bad statistics in McIntyre and McKittrick followed by yet more detailed explanation of principal component analysis (first discussed in Chapter 4) he notes that

*“performing a Google search on ‘climate change’ or ‘global warming’ invariably turned up denialist sites as the leading hits, with legitimate sources of scientific information buried further down the list, a casualty of the virtual flood of climate change disinformation that now saturated the Internet.”*

He then gives a plug for his own site – RealClimate - launched in December 2004. The next few chapters treat the “war” chronologically, each one devoted to a year. The political theme is returned to in Chapter 10 via creationism and Lysenkoism and his brush with the House Energy and Commerce Committee (chair Joe Barton) in 2005 with his extraordinary demands for information on MBH98 and MBH99 on

*“all financial support“, “location of all data archives and supporting documentation ...any modifications...and the steps [needed] to replicate your study“, “your work on behalf of the IPCC”.*

The outrage this produced in the scientific community is outlined together with the entry into the fray of Representative Boehlert (chair of the Science Committee). He also out-

lines the replies of the three authors and the counter-attack by Barton in the form of the Wegman Report (Wegman et al, 2006). This report and a reply commissioned by Sherwood (Committee on Surface Temperature Reconstructions for the Last 2,000 Years, National Research Council, 2006) together with various congressional hearings in the summer of 2006 form the basis of Chapter 11. The IPCC AR4 was published in 2007 (IPCC, 2007) following Al Gore's *An Inconvenient Truth* in 2006. The position of palaeoclimate reconstructions at this time are noted as are four pillars of denial (climate models are crude, global mean temperatures are contaminated by heat islands, temperatures derived from satellite data, warming is natural) usually posited by deniers are looked at closely in Chapter 12 and refuted. He asks if this was the end of climate change scepticism and decides the answer is 'no'. Denier media, internet disinformation sites and contrarian blogs continue the work with some contrarian papers being published as well - several of these are analysed. The chapter ends with his own paper (Mann et al, 2008) described. Further denier attacks in 2009 via The Heartland Institute are given in Chapter 13. At the same time Congress was opposing the Obama administrations attempts to regulate greenhouse gas emissions and deniers were querying some tree ring temperature reconstructions in the Yamal Region of Russia and papers on Polar warming. It was an example of the smear campaign – manufacture unfounded criticisms and spread them through the Internet.

Finally in November 2009 we have Climategate and Chapter 14 is entitled "Climategate: The Real Story." The distortions manufactured by the hacking are enumerated together with the furore on the Internet and its take up by Congress. Readers might look up an analysis by Morgan Goodwin in his DeSmogBlog at <http://www.desmogblog.com/climategate-autopsy>. Mann also describes a number of very personal attacks on himself which were traced back to the Scaife Foundations aimed at

*"my livelihood, my reputation, my safety – but even my family"*.

In the last chapter (Chapter 15) he itemises the fight back against the deniers during 2009 – the various reports exonerating the Climate Research Unit and Phil Jones. He delves into the more recent denier campaigns such as the Cuccinelli (attorney general of Virginia) campaign against the University of Virginia (where Mann worked 1999-2005) and the new developments into errors in the Wegman Report. The book ends with an Epilogue and Postscript that brings the history of the Hockey stick wars up to February 2013. He notes that although the United States saw its lowest level of carbon emissions in twenty years in 2012 the rest of the world is moving towards renewable energy.

The last third of the book (37%) is devoted to notes on the chapters and these often include arguments and references that are not included in the short bibliography (16 references). Unfortunately this ebook reader found it cumbersome to keep flicking back and forth between text and notes and found it easier to read the notes after reading each chapter. There is also a long

list of acknowledgements and an index which is useless as it contains no way of identifying where a subject can be found – another disadvantage of the ebook version.

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