

# IN THE LINE OF FIRE

Scientists who published the famous “hockey stick” graph experienced sustained attacks soon after the figure was incorporated in the 2001 report from the Intergovernmental Panel on Climate Change. Now one of those scientists, Ray Bradley, has written a very personal account of his experience. He spoke to Owen Gaffney about his new book.

The “hockey stick” refers to a figure documenting the 1000-year temperature record that rises steeply from the end of the 19th century after a centuries-long gradual decline. This figure has been the public face of climate science during the past decade. But almost since the day it was published, the scientists responsible came under attack. Ray Bradley, a member of the IGBP Scientific Committee and one of the architects of the figure, found himself in a highly charged environment. He recounts his experiences in a new book, *Global Warming and Political Intimidation: How Politicians Cracked Down on Scientists as the Earth Heated Up* (University of Massachusetts Press: [www.umass.edu/umpress/spr\\_11/bradley.htm](http://www.umass.edu/umpress/spr_11/bradley.htm)).

**This book is really the story of the “hockey stick”. How does it begin?**

In 1998, a post-doc, Mike Mann, Malcolm Hughes and I

published an article in *Nature* on climate in the last 600 years (Mann *et al.* 1998). Then, in 1999, we published another article in *Geophysical Research Letters* on temperature over the last 1000 years (Mann *et al.* 1999). The title was “Northern hemisphere temperatures during the past millennium: inferences, uncertainties, and limitations.” We were emphasising the uncertain nature of the problem. But nevertheless, when it got picked up by the summary for policymakers of the third Intergovernmental Panel on Climate Change (IPCC) report, important caveats were left out.

**It became almost a symbol of the IPCC. Is that fair?**

Yes. It became an icon for global warming because we argued that the decade of the nineties was the warmest for 1000 years. And, because it became a symbol of the IPCC it was a target of attack by those opposed to

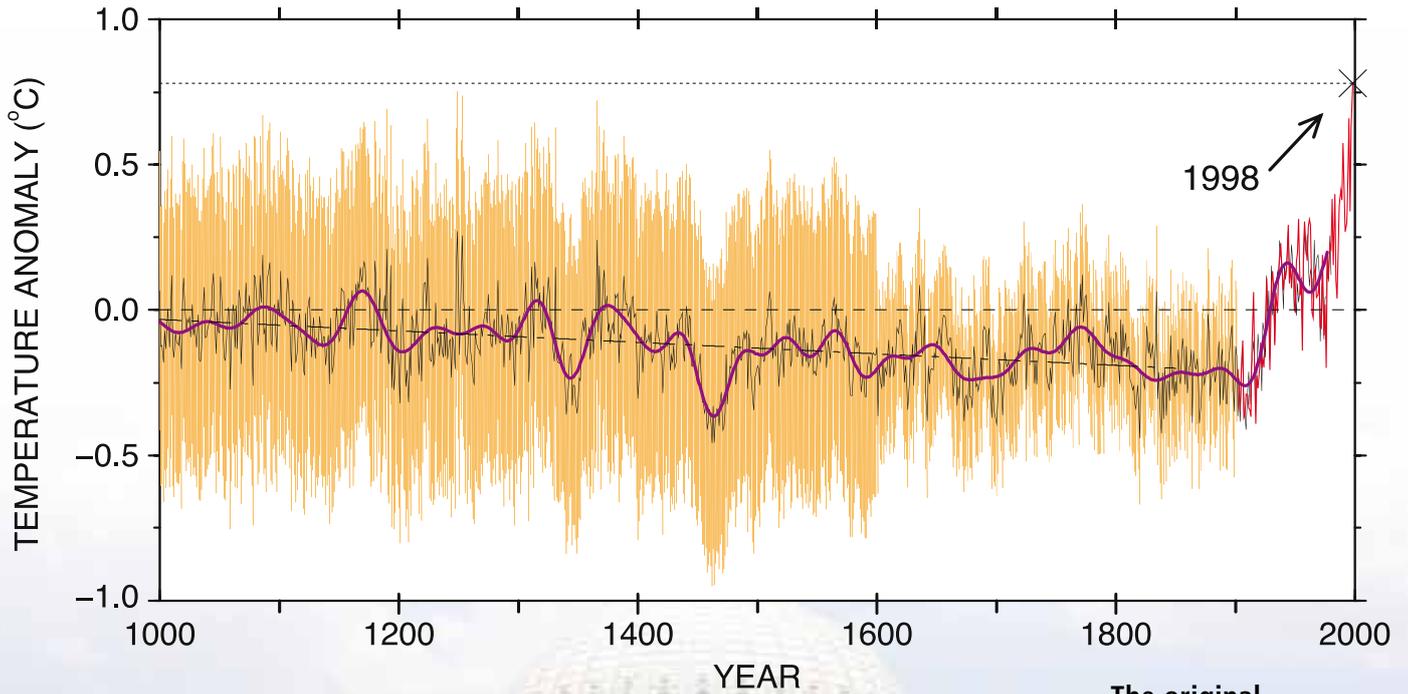
legislation to control greenhouse gases. In my opinion, these people wish to limit the IPCC’s damage to their interests.

**Who are we talking about?**

Some wealthy foundations, quasi-political organisations and energy companies oppose legislation to control greenhouse gases. And so, some of their sympathisers in Congress were encouraged to question the veracity of the IPCC. They were determined to sow seeds of doubt about the quality and reliability of climate science and the conclusions that led to the IPCC saying that human activities were causing the climate to change.

But in the IPCC Third Assessment, a report of over 880 pages, the “hockey stick” occupied less than one page. There were more than 200 figures in the book. The “hockey stick” figure was only one of them. It is quite obvious that

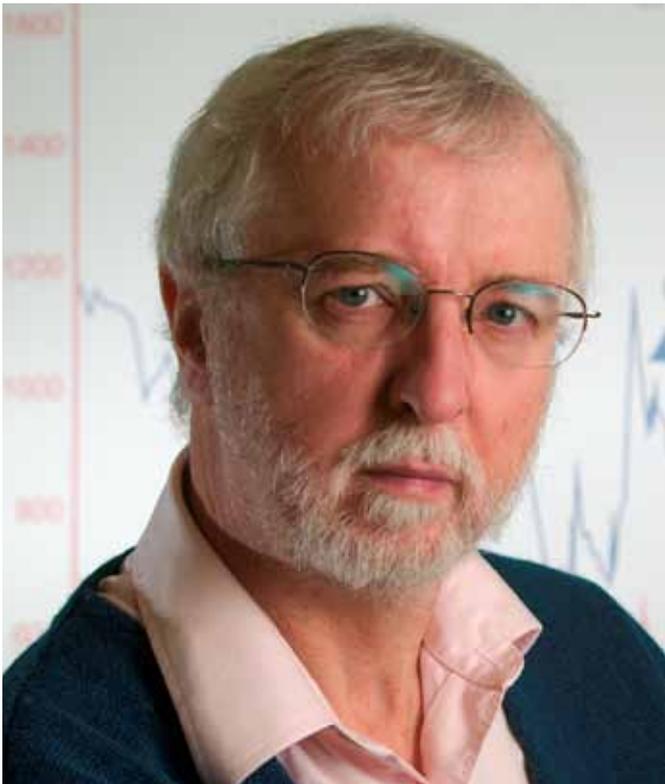
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The original "hockey stick" graph

- reconstruction (AD 1000–1980)
- instrumental data (AD 1902–1998)
- · · calibration period (AD 1902–1980) mean
- reconstruction (40 year smoothed)
- - - linear trend (AD 1000–1850)

Slightly modified version of Figure 3 from Mann et al. (1999): Millennial temperature reconstruction. (a) NH reconstruction (solid) and raw data (dotted) from AD 1000-1998. Smoothed version of NH series (thick solid), linear trend from AD 1000-1850 (dot-dashed) and two standard error limits (shaded) are also shown.



Ray Bradley, a member of IGBP's Scientific Committee, was one of the architects of the "hockey stick" graph.

our graph was not the basis for the IPCC's conclusions. If it had never been included, the physical arguments for human-induced global warming would still have been compelling.

### When did the US Congress get involved?

The book starts out with a hearing I went to on Capitol Hill. It was 17 May 2000 and I was there to testify about global warming to the Senate Committee on Commerce, Science and Transportation. The experience was positive. Republican Senator John McCain chaired the committee. John Kerry was the ranking minority member. McCain openly admitted his lack of knowledge of the issue and was asking for help. I felt there was a good reaction to the testimonies.

### When did relations begin to deteriorate?

Joe Barton, a Republican

Congressman from Texas, became chairman of the important House Energy and Commerce Committee.

In 2005, Barton wrote to me, Mike Mann and Malcolm Hughes and demanded a whole heap of information. This letter was from the Subcommittee on Oversight and Investigations and it was intimidating. You felt like you were about to be indicted. That you'd done wrong.

Oddly, they were not asking for information specifically about the "hockey stick" paper, but about our background, how much money we had ever received, and a lot of intrusive information about our careers. And asking for all emails of everyone who had ever written to us asking for information or data, and how we'd responded to those requests.

### What was the point of this letter?

In all of these things, they are not attempting to attack the scientists, they are trying to attack the credibility of the IPCC. If you happen to be one of the people who get in the way, they do not care. They are not interested in whether they destroy your career or your reputation. Their simple goal is to sow uncertainty in the minds of the public. They have been very successful at this in the US. They have managed to make people think climate scientists are a bunch of fakes and manipulators of data, and people who hide data. None of which is true.

### Do you think the media are in collusion with these people?

I don't think they are in collusion but I think they are being extremely naïve in how they are being manipulated, or maybe they are only interested in marketing their business interests – selling papers – so any controversy is grist to the mill.

**You felt like you were about to be indicted.**

### Another US Senator, James Inhofe, is also a prominent critic.

Inhofe says global warming is the greatest hoax ever perpetrated on the American people. He has teams of people attempting to deconstruct the IPCC. He issues his own version of the IPCC report and tries to destroy everything within the IPCC reports.

Inhofe is from Oklahoma. You will notice that Texas and Oklahoma play prominent roles in this story because they are the oil states.

### Barton also commissioned a report on the veracity of the "hockey stick". What was your response to that?

Barton was not content with a National Academy of Sciences report that did not endorse his opinions, so he commissioned a team of statisticians to evaluate our methods. He wanted all our supposedly egregious errors exposed and made part of the congressional record.

The report criticised the statistical procedures we used, arguing that "hockey stick"-shaped records will always result from the methods we used. But this is not the case, if you follow our procedures in full. This has been shown by many other climate scientists in later studies.

Besides, we have since shown that even if you entirely avoid the procedure Barton's statisticians objected to, and simply average all the data we used, you get the same "hockey stick" result. Simply put, the "hockey stick" is bomb-proof. No amount of data manipulation will make it go away.

As I read their report, I must say I was impressed by how well the statisticians had grasped the intricacies of palaeoclimatology and, in particular, high-resolution studies of tree rings, ice cores and corals. Their section on the problems of using tree

rings, and of the important points that one must take into account, struck me as strangely familiar. It was only later that I realised that large sections of the report had been lifted verbatim from my own 1999 book on the subject. I don't think the word "irony" does justice to the fact that somebody commissioned by Congress to investigate the wrongdoings my colleagues and I had supposedly committed had the nerve to reproduce entire paragraphs from a book written by one of the people under investigation without citing the source.

**In March 2010, Inhofe called for a criminal investigation of 17 climate scientists. You were one of the 17. How did you feel when you heard that news?**

Inhofe knew that his report criticising the IPCC would sink like a stone, as the media was losing interest. So he coupled it with a statement that 17 scientists should be investigated by the department of justice for these various "offences", and of course that hit the headlines. By that time Obama was in the White House so I could shrug it off.

If Bush had been in the White House, it would have been a different story.

**Have things changed under Obama?**

Obama once talked about climate change but now he cannot because the political climate in Washington has put the topic "off-limits". He talks about "green jobs". That is the best he can do.

Climate is the litmus test for new Republicans joining the party. It is like abortion. Anybody who supports the notion that there is anthropogenic climate change and that there should be controls on greenhouse gases will never receive the support of the right wing of the Republican Party.

Even John McCain, who was initially persuaded that global warming is an important problem, has now dropped it. He never even talks about it anymore.

**The treatment of scientists in the US has been described by some sections of the media as akin to McCarthy's witch-hunts in the 1950s. Is this fair?**

It is McCarthyism. They are trying to tar scientists with this notion that they are frauds. That scientists are manipulating data. That researchers have a hidden agenda: to cripple the free market.

This is what the book is about. Politicians are using the power of the state to intimidate individuals with no power. They have the resources. They can indict you. They can subpoena you. And you have to defend yourself at your own expense. Even if their charges are completely false they can still bankrupt you.

George Soros called these right-wing reactionaries "market fundamentalists". These people believe there should be no regulation. The market will solve environmental problems, if there are any. But history shows that there is very little evidence to support that view.

**Europe has largely avoided the extreme political polarisation of climate science. Can the US learn any lessons from the UK or Germany?**

Unfortunately, I think the change is going in the opposite direction. Private organisations are being set up in Australia and Europe to proselytise the same story. They want to internationalise the whole issue. Far from the US learning from Europe. I think it is going to go in the other direction.

**How has all of this pressure affected careers and reputations?**

I think within our field it has not had much of an impact. But

to the general public the impact is massive. People are confused and sceptical about climate science. The strategy adopted by the energy industry, the free-market fundamentalists and their Republican allies has been very effective. We have been impotent: we don't have the resources.

**You finish the book discussing a civil investigative demand to Mike Mann's former employer, the University of Virginia, from the Attorney General of Virginia, Ken Cuccinelli. This demand was described in *Nature* as an "ideologically motivated inquisition". How did the university respond?**

Thomas Jefferson established the University of Virginia in 1819. In its eloquent defence to Cuccinelli, the university quotes Jefferson's founding statement: "scientific enquiry should be free from political intimidation." The university rejected Cuccinelli's demand, and the court sided with the university.

Unfortunately, Cuccinelli has not given up, and he has refiled his demand in court. This demonstrates the point of my book: that public officials are using their positions to pursue a politically motivated agenda, to intimidate scientists and to try to denigrate or suppress research that does not support their position. ■

OWEN GAFFNEY is Director of Communications at IGBP.

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