

Conversing with climate change skeptics

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Last year at a reception at the Austrian embassy in Washington, DC, I met a climate change skeptic. Although I remain swayed by the case that humans' emission of carbon dioxide and other greenhouse gases has warmed Earth's lower atmosphere, I did not dismiss the skeptic's contrary case. We even continued the discussion cordially through email.

I don't see such conversations as capitulation or as an opportunity to convert people to the near-consensus position on climate change. Rather, I'm genuinely curious about contrarians' grounds for skepticism in the face of overwhelming scientific evidence.

Consider, for example, the adverse health effects of smoking tobacco. By the mid 1950s, British epidemiologists Richard Doll and Austin Bradford Hill had established a compelling link between lung cancer and smoking. In 1962 the Royal College of Physicians (the UK equivalent of the American Medical Association) issued the report *Smoking and Health*, which guided doctors on the issue. To boost the report's impact, RCP held a press conference, the college's first ever.

Contemporary reactions to the report from individuals and editorialists appear in historian David Kynaston's book *Modernity Britain: 1957–1962* (2014). "Quite honestly, I think that the end of one's life is probably more in the hands of almighty God, you know, than in my own hands or the hands of the tobacco manufacturers," said a pack-a-day smoker to a BBC TV interviewer after the report came out.

It's tempting to see a parallel. Smokers deny the health effects of tobacco because they don't like the solution: cutting back on cigarettes. Skeptics deny the warming effects of greenhouse gases because they don't like the solution: cutting back on fossil fuels. But the skeptics have a point. Whereas giving up smoking is an unqualified benefit, that's not the case for fossil fuels. Giving them up would have a serious effect on the

world's economy. I happen to believe that we should reduce the burning of fossil fuels for energy, but I acknowledge the counterargument.

The alleged inaccuracy of climate models is a drum that skeptics continue to beat. Charles Keeling began monitoring

atmospheric carbon dioxide on Mauna Kea in 1958. By the time the US National Academy of Sciences issued its report *Changing Climate: Report of the Carbon Dioxide Assessment Committee* in 1983, the CO₂ concentration had risen by around 10%. In the same time span, Earth's mean temperature could, with reason, be claimed to have remained more or less constant. To make the case that greenhouse gases cause warming, climate scientists had to resort to models. Earth's climate is a complex system. Uncertainties remain, notably to do with aerosols, in the models that seek to capture its principal features.

I'm not qualified to discuss the details of modeling the climate. However, I can point out that the current mean temperature is 1 °C higher now than it was in the 1950s. As the temperature continues to rise, it's becoming harder to deny that climate change is happening, regardless of the accuracy of models, which happens to be high. My interlocutor from the Austrian embassy party concedes that the lower atmosphere is warming. He remains skeptical that humans are responsible for most of the warming.

What would it take to convince him and other skeptics? For answers, I looked at another Earth sciences controversy that took four decades to resolve: plate tectonics. Various lines of evidence strongly suggested that Earth's continents slid across the planet's surface. While conceding the strength of the evidence, skeptics pointed out that a mechanism and energy source for the titanic movements were lacking.

But as Naomi Oreskes observed at the end of the introduction to the book *Plate Tectonics: An Insider's History of the Modern Theory of the Earth* (2001), the skeptics eventually came around and joined their colleagues in elucidating the theory: "Scientists who had been raised to believe that the earth's crust was fixed, that continental drift was impossible, and that Alfred Wegener was a crank, now contributed their own scientific brilliance to showing how the crust moved, what made it move, and that Wegener, in his overall insight if not in every detail, was right. This, perhaps, is the most important part of the story, a story of scientists who realized what they had previously believed was wrong, and set it right." PT



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