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BOOKS

Anchor Management

The Two Degrees Dangerous Limit for Climate Change: Public Understanding and Decision Making

by Christopher Shaw. New York, NY: Routledge, 2016, 137 pp.

Oliver Geden

Climate policy makers and political leaders love global targets. By adopting climate stabilization goals to limit temperature increases to a specified amount—usually two degrees Celsius (2°C)—above preindustrial levels, they demonstrate their commitment to solving a pressing global problem. Unfortunately, governments worldwide have delivered mainly promises so far, and their climate policies have been much more about intentions than about results. The policy relevance of climate science has been restricted mainly to policy formulation. It has not been translated into appropriate action.

That climate target-setting at the United Nations (UN) level has not been followed by radical cuts in global emissions is reason enough to criticize and reject the dominant "targets and timetables" approach, as shown by the work of scholars such as David Victor, Roger Pielke Jr., Steve Rayner, and Mike Hulme. In his insightful book *The Two Degrees Dangerous Limit for Climate Change: Public Understanding and Decision Making*, Christopher Shaw takes a somewhat different perspective. Even though it clearly identifies the many shortcomings of the two degrees climate target, Shaw's critique is primarily concerned with the democratic quality of the decision-making process and the particular level set for dangerous climate change. "If climate change is the greatest challenge facing humanity," he asks, "what sort of democracy is it that does not give people a say in the trade-offs that responding to climate change requires?"

The two degrees target is the result of a cooperative and mutually beneficial relationship between climate science and policy. The target's development began as early as the mid-1990s, in an attempt to operationalize Article 2 of the UN Framework Convention on Climate Change (UNFCCC), with an objective to "prevent dangerous anthropogenic interference with the climate system." The two degrees target was formulated through a dialogue between climate scientists and scientific policy advisors and was formally adopted by policy makers at the 2010 UN climate change conference in Cancún (COP16).

For almost 20 years now, the two degrees target has worked as an "anchoring device." It allows networks of diverse actors to communicate and interact, albeit with varying motivations and objectives. For climate policy makers, the target has served as a prominent symbol of an ambitious global mitigation effort. For climate scientists, it has provided the basis for complex calculations to determine carbon budgets and emissions reduction paths, which in turn are used to demonstrate the usefulness of scientific tools in the design and evaluation of climate policies. Through their interactions, scientists and policy makers provide each other with mutual reinforcement and recognition: the scientific community lends support and legitimacy to political efforts to advance the climate policy agenda, while policy makers support climate research, which in turn is reflected in heightened public awareness and significantly increased funding.

Shaw does not see this as evidence of success. From his perspective, which focuses on the interests of vulnerable countries and marginalized communities, the broad consensus on two degrees is problematic in several respects. First, the assumption that avoiding dangerous climate change means the same thing for the whole of humanity effectively masks conflicts between the interests of different countries and social groups. Second, the logic of risk management and safety limits not only frames climate change as a technical issue that can be managed by experts, but also establishes the idea of an "acceptable" amount of climate change or greenhouse gas emissions. Third, by setting the limit at a temperature level that might not be crossed for decades to come (since there is a time lag between emissions and temperature response), the two degrees storyline depicts climate change primarily as a problem that will become palpable only in the future. Fourth, since the two degrees limit is usually not presented to the public as co-produced by scientists, advisers, and policy makers, but rather as a hard scientific fact, it discourages public scrutiny of both the idea of a single global limit and of the particular level set. Last but not least, the two degrees limit represents an elite consensus from which marginalized and dissenting voices have been excluded.

The unique feature of the book, which is based on Shaw's doctoral dissertation, is that it examines public representations of the two degrees limit in the United Kingdom. Analyzing news media and interviews conducted with climate scientists, policy makers, and activists, Shaw

The scientific community lends support and legitimacy to political efforts to advance the climate agenda, while policy makers support climate research.

is able to reconstruct how the concept of a single, global measure of dangerous climate change became established within the climate debate in the United Kingdom, and how it has been legitimated and sustained within the British public sphere.

Although Shaw's critical analysis of British media and policy discourses does not offer especially fresh insights, it is fascinating to read how scientists, policy makers, and activists deal with the underlying complexities of the two degrees limit. Shaw sees a "not in front of the children" approach at work here. Policy wonks usually know quite well that there cannot be a single threshold to dangerous climate change. Some even know that two degrees is based on a set of uncertain assumptions, a rather contingent choice not very well founded in climate science. Yet in public, they all defend the established concept, since it is such a powerful instrument for climate policy formulation, or, as a campaigner puts it: "Uncertainty is really not a big help in the political domain and public communication."

Shaw's critical examination of the now-established concept of setting a limit for dangerous climate change comes at the right time—or maybe a bit too early. Unfortunately, the book does not reflect on the outcome of the Paris climate summit (COP21) in December 2015, which brought about a new target formula: the intention of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change." The UNFCCC even demanded that the Intergovernmental Panel on Climate Change (IPCC) write a special report on 1.5°C by 2018, although the new "pledge and review" approach that is at the heart of the Paris Agreement commits signatories to an aggregate emissions level in 2030 that would probably lead to a 3° to 3.5°C temperature increase by 2100.

So what might Shaw make of 1.5°C? Although not the consensus-anchoring device of two degrees, this lower target has been part of UN negotiations since the Copenhagen summit (COP15) in 2009. Shaw's book mentions it occasionally, mainly to show that there have been alternatives to 2°C under discussion that aimed to lower the acceptable level of climate risk, particularly for the most vulnerable countries. But since a 1.5°C limit for dangerous climate change shares many features with the two degrees limit, Shaw's approach contains a healthy wariness toward a mere change of the target's level if the process of arriving at that result remains unchanged. Or, as he puts it: "The question is not just what, if anything, should replace the idea of a two degrees limit, but *who* should decide what, if anything, replaces it."

The Two Degrees Dangerous Limit for Climate Change is a valuable contribution to the critical debate about global climate targets, which has entered a new phase after the Paris Agreement. We can hope that the 1.5°C decision, the commissioning of a new IPCC special report on 1.5°C, and the obvious inconsistency between talk, decisions, and action in UN climate policy making will motivate a more fundamental debate on the use and abuse of targets in climate policy. So far, the setting of long-term global climate stabilization targets has not been a prerequisite but rather a substitute for appropriate action.

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Listening to Patients

Ordinarily Well: The Case for Antidepressants

by Peter D. Kramer. New York, NY: Farrar, Straus and Giroux, 2016, 336 pp.

David Healy

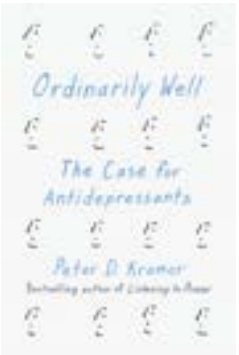
This book was very difficult to review. In *Ordinarily Well: The Case for Antidepressants*, Peter Kramer, a psychiatrist and best-selling author, makes two arguments with which I agree. One is that clinical observation—the interaction by which a medical professional learns about a patient—counts for something. The other is that clinical trials, or evidence-based medicine more generally, are not a replacement for clinical wisdom. He values antidepressants, in particular the selective serotonin reuptake inhibitor (SSRI) class of drugs, and so do I, based on my own medical experience.

Applying support for clinical observation and skepticism about controlled trials to the question of whether antidepressants work, Kramer concludes that these treatments work very well. En route, he focuses on the claims of psychologist Irving Kirsch, among others, that based on clinical trial data, the benefits of antidepressants are all in the mind—a placebo effect. Kramer makes a straw man of Kirsch, but I agree with Kramer that antidepressants do things that are not all in the mind. I, too, reject Kirsch's arguments that most of what antidepressants do stems from a placebo effect.

So where did my difficulties in reviewing the book come from? The trouble for me is that Kramer's clinical vision seems strangely rose-tinted. He is an advocate of using antidepressants to treat depression, but he doesn't seem to see any of the problems antidepressants cause. The fact that over half of the patients put on them don't take them beyond a month should be telling. For those who do stay on treatment, he claims, no one has difficulties going off antidepressants with a gradual reduction in dosage. I, however, have patients suffering badly months or even a year later. In the case of any enduring problems, Kramer puts these

down to the effects of the illness being treated rather than the medication.

There is no discussion in this book of significant problems that the use of antidepressants can cause. These include SSRI-induced alcoholism; SSRI-induced birth defects, such as autism spectrum disorder; or permanent post-SSRI sexual dysfunction. In a 336-page book, the topic of SSRI-induced suicidality gets dealt with in one page. I think many surviving relatives would be astonished to hear that once the psychiatrist Martin Teicher had identified the problem of treatment-induced suicide, it became manageable. Kramer claims that "no case [he has had], not one, has looked like those Teicher has described, drug driven."



Kramer asks us to believe in clinical observations—his observations. Not yours or mine or anyone's that might cause the antidepressant bandwagon to wobble. He cites me at multiple points, so he is well aware of my work. But he doesn't engage with the evidence that I and others have put forth, based on both clinical observations and other material, that SSRIs can unquestionably cause suicides and homicides, and do so to a greater extent than they prevent any of these events.

On the issue of children, suicide, and the black box warnings that antidepressants now carry, Kramer notes that "some of the data have trended the other way, although authoritative studies correlate increased prescribing with reduced adolescent suicide." This fails to acknowledge that the drugs haven't been shown to work in this age group. There is no mention that suicidal acts show a statistically significant increase in clinical trials in this age group. Kramer also does not indicate that among all ages, when all trials of antidepressants are analyzed together, they show increased rates of death (mainly from suicide) compared with nontreatment. He seems to have no feel for how compromised the "authorities" are that he uses to downplay the risks.

There are good grounds to be skeptical of the evidence-based medicine that Kramer uses to make his case. Quite aside from the fact that almost all the research literature produced by clinical trials is ghost written by pharmaceutical companies, and the data from them entirely inaccessible, controlled trials aren't designed to show that drugs work. They work best when they *debunk* claims for efficacy, rather than the reverse. What's more, the structure of clinical trials and their statistical analyses are the best method to hide a drug's adverse effects. *Ordinarily Well* does not address these significant problems.

If a drug really works, then clinical observation should pick it up. We can tell antihypertensives lower blood pressure, hypoglycemics lower blood sugar, and antipsychotics tranquilize within the hour—all without trials. We can see right in front of us that antipsychotics badly agitate many people within the hour and that SSRIs can do so, too. But we cannot see anyone get better on an antidepressant in a way that lets us as convincingly ascribe the effect to the drug. There is much to be said for clinical observation, but also a lot to wonder about when clinical trials suggest that drugs work but we can't actually see it. For anyone keen to defend clinical observation, Kramer's book poses real problems and would leave many figuring we need controlled trials instead.

I live and work in the United Kingdom and am acutely aware of some differences between the United States and Europe that also made it difficult to review this book. There is much more "bio-babble" in the United States than in Europe, from talk of lowered serotonin to chemical imbalances to neuroplasticity and early treatment preventing brain damage—all of which Kramer reproduces. I felt a John McEnroe "you cannot be serious" coming on at many points. The tone in which some of these points are made suggests that everyone reading them will find what is being said self-evident, when in fact it's gobbledegook.

All medicines are poisons, and the clinical art is bringing good out of the use of a poison. It strikes me as un-American to even suggest that a drug might be a poison, and Kramer's book gives no hint of this; the book is, in this sense, deeply nonclinical. He is giving an account of a mythical treatment, as far removed from real medicine as an inflatable sexual partner is from the real thing. It seems to me that he would not see or hear many of the patients I see, or at least would not credit their view of what is happening to them on treatment. This book will misinform anyone likely to take an antidepressant.

It will also cause problems for physicians. This book does not balance the risks and benefits that are intrinsic to medical wisdom. If antidepressants are as effective as Kramer claims, and are as free of problems as he suggests, there is no reason why nurses and pharmacists couldn't prescribe them. Given that they are much less expensive prescribers, the surprise is that health insurers haven't moved in this direction.

There is a way to bridge the gulf between Kramer and myself, which involves clinical observation. Most of the beneficial effects Kramer describes can be reframed in terms of an emotional blunting, or the numbing of all emotions, not simply the bad ones. Just as people on an SSRI will nearly universally report genital numbing within 30 minutes of taking their first SSRI—if they're asked—people will also report some degree of emotional numbing—if asked. They don't necessarily feel *better*; they simply feel *less*.

Unlike the somewhat mystical brain re-engineering Kramer invokes, this emotional blunting can be verified by clinical questioning. If clinical trials were designed to assess whether patients are numbed by these drugs, there would be little need for the fancy statistics that pharmaceutical companies use to claim the targeted benefits of their drugs, since emotional blunting would be evident

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Kevin Finneran, Editor and Publisher

through clinical questioning. And Irving Kirsch's arguments about placebo would be irrelevant.

If SSRIs numb emotional experience, this would explain why they help some and not others, and explain the results we see in clinical trials, which are similar to the results that might be expected from a trial of alcohol versus placebo in the milder nervous states in which antidepressant trials have been run. This, then, would present us with a question: what do we think about emotional blunting as a therapeutic tool? Emotional blunting is not a romantic option. It's a much more ordinary one. If that is the process by which antidepressants work, it does patients an enormous disservice to avoid discussing it entirely, which this book does.

David Healy is professor of psychiatry at Bangor University in the United Kingdom and the author of more than 20 books, including Let Them Eat Prozac *and, most recently,* Pharmageddon.

Change's Challengers

Innovation and Its Enemies: Why People Resist New Technologies

by Calestous Juma. New York, NY: Oxford University Press, 2016, 432 pp.

Alex Trembath

On the one hand, the world is obviously a much better place than it used to be.

Don't take my word for it: the past few years have seen a surge of evidence. Data visualization wizards, such as Sweden's Hans Rosling and Oxford economist Max Roser, have used their two projects (Gapminder and Our World in Data, respectively) to graph human progress over the past several centuries, using axes measuring prosperity, health, education, female empowerment, and other metrics. Best-selling books, such as Harvard professor Steven Pinker's *The Better Angels of Our Nature,* detail an increasingly peaceful world. Columbia University's Ruth DeFries's *The Big Ratchet* shows how humanity is growing more food more efficiently, making food cheaper, and leaving more room for wild nature. Nearly everywhere we look we are, as Charles Kenny succinctly but memorably titled his acclaimed 2011 book, *Getting Better*.

On the other hand, the world is full of risks, dangers, and insecurities that humans have not previously encountered.

The challenges facing humanity today have accumulated in both magnitude and complexity. They include climate change, the loss of ecosystems and animal populations, social and economic inequality, and a historically familiar resistance to multiculturalism in many countries. Making matters worse, the public and social institutions we count on to rebuff these risks are under attack.

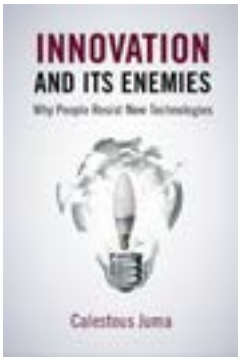
Those of us pleased by the general outcomes of modernity (myself included) should take a moment to consider this tension, for it represents a real challenge to continued modernization for both the rich and the poor today. Although progress has become more robust and sophisticated over the course of modern history, so too have the powers that stall, obstruct, and reject progress.

In his new book, Calestous Juma pits these two forces viscerally against each other. Fittingly titled *Innovation and Its Enemies*, the book charts a fascinating new history of emerging technologies and the social opposition they ignite.

Juma would be high up on the list of experts to consult about such things. He is a professor of international development at Harvard University's Belfer Center, directing the center's work on science, technology, and globalization. An expert in agricultural systems and technologies, Juma has long been steeped in controversies over agricultural trade policy, genetic modification, and other agriculture and biotech debates.

He begins his book with a schema for why societies might resist innovations—a representation so lengthy and complex one wonders how any new technology

could overcome it. Among other obstacles, Juma highlights intuitive factors, such as disgust and defense of what's considered "natural," vested economic interests, socio-technical inertia, and responses, such as risk aversion, that can stem from both intellectual and psychosocial motivations. With this structure, Juma makes it easy to draw parallels between his case studies—coffee, the printing press, margarine, farm mechanization, electricity, mechanical refrigeration, recorded sound, transgenic crops, and the genetically modified AquAdvantage salmon—and the social resistance to them on display today.



Searching for a precursor to the currently ascendant backlash against outsider faces, perspectives, and cultures? Look no further than authoritarian sixteenth and seventeenth century objections to coffee, a then-novel drink that was consumed in public spaces that "served as secular forum for conversation that drew people from all social strata."

The seemingly endless battle of words and policies between renewable energy and nuclear power advocates? Let's flip back to the dissemination of electricity itself, which saw Thomas Edison and George Westinghouse amp up their largely technical dispute with claims over morals, identity, and public health.

Concerns over human neuro-cognitive therapies and pharmaceuticals? These clearly echo anxieties over genetically modified crops, in that both innovations violate some (or many) definitions of what's "natural."

These are the CliffsNotes, of course. None of these innovations faced simple or singular opposition. Indeed, one of Juma's conclusions from his case studies is that challenges to new technologies are " not always direct but often clothed in other concerns depending on contemporary social and political factors." Many emotional, rational, and faux-rational forces can be marshaled to quell the rise of a strange or distasteful new technology. Sometimes these forces might even be necessary, as when an innovation stands to profit the few at the expense of the many.

How, then, might we responsibly guide and accelerate innovation against its enemies? Technological superiority appears to be a powerful, if insufficient, condition: coffee proved a better stimulant than khat in Yemen or chicory in England and Denmark; electricity ultimately proved safer, more useful, and cheaper than its predecessors kerosene and town gas; transgenic seeds really do allow more food to be grown on less land, sparing large impacts on ecosystems and biodiversity.

But social organization and social license can be decisive as well. The printing press clearly serves the purpose of spreading literature and ideas better than oral history and copying by hand, but the cultural traditions of Muslims delayed acceptance of the printed word in the Ottoman Empire for four centuries. A previously fractured and unorganized dairy lobby in the United States fortified itself to fight the arrival of margarine. Juma quotes the medievalist Lynn White, writing that "the acceptance or rejection of an invention … depends quite as much upon the conditions of society, and upon the imagination of its leaders, as upon the nature of the technological item itself."

Advocates of a particular technology commonly condescend toward "Luddites" who resist technological change. Pro-nuclear figures recite turgid technical and safety statistics to argue for its dominance. Biotechnology advocates refer to their interlocutors as "flat-Earthers" for resisting genetic modification. Climate campaigners demand a "wartime mobilization" of renewable energy technologies, casting aside concerns about energy system transitions, fuel prices, and local preferences for energy infrastructure. This is an understandable impulse; the promise of new technology is appealing to many, and societies have never had greater capacity to safely integrate innovation than they do today.

But it would be foolish to conclude that the best stance is to laugh off social resistance and blindly cheer the forceful arrival of new technologies.

Hallmarks of modernization include the centralization of production and the democratization of consumption. In other words, we have never had access to more and better technologies, but we (or at least most of us) are also far removed from the modes of production that make modernity possible. This distance from the source of ever-changing technology makes it inevitable, and appropriate, for the public to exercise its democratic skepticism toward a variety of innovations. The skeptics' case is even stronger when innovation arrives without their consultation, which, as Juma puts it, "may confer more benefits to the producers, but [also] exposes them to collective action by consumer groups."

So innovation's enemies are not simply the enemies of modernity. They are modernity itself, with all its contradictory desires, forces, and discourses. Integrating this diversity of values and perspectives will take, Juma writes, "a worldview of the future that visualizes exponential technological advancement, appreciates the perception of loss in complex socio-economic systems, and develops more appropriate approaches for supporting informed decision making." That means bold and bright political leadership. It means movements to fire up the public's imagination. It means negotiating and channeling multiple social perspectives toward solving common problems.

It also means that the innovations and technologies we hope for might arrive a little more slowly than some of us would like. But we shouldn't forget, in our impatience, that we have never been better equipped to pursue a bright technological future.

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