

BOOK REVIEW

THE BEST AMERICAN SCIENCE AND NATURE WRITING 2017

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The Earth's climate is extraordinarily complex. Unlike dinosaur fossils or organic chemistry or primate behavior, climate is always in flux, with countless factors influencing one another in an endless unfolding of diachronic stochastics. Given this complexity, one might presume that scientists who study planetary climate would be endowed with exceptional patience, scholarly integrity, and intellectual humility. After all, it takes a long time to learn even a little bit about such an intricate system, so part of the job description of climate scientist would seem to be acknowledging that there is only so much that is known about the 1.09×10^{44} or so molecules swirling about in the atmosphere. Even more complex

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than all that, though, is navigating the public's interest in the field. Climate is contentious, and a climate scientist will have to keep his cool, sticking to the facts amidst even the most heated rhetorical environments.

And yet, this is precisely not how a startling number of climate scientists choose to behave. Former head of the National Aeronautics and Space Administration (NASA) Goddard Institute for Space Studies James Hansen, for example, once made the rather alarming claim that "it will soon be impossible to avoid climate change with far-ranging undesirable consequences. We have reached a critical tipping point. [...] We have at most ten years—not ten years to decide upon action, but ten years to alter fundamentally the trajectory of global greenhouse emissions."¹ And what might happen if the Earth warmed by the five degrees Hansen was warning about? Hansen tells us in detail.

The last time that the Earth was five degrees warmer was three million years ago, when sea level was about eighty feet higher. Eighty feet! In that case, the United States would lose most East Coast cities: Boston, New York, Philadelphia, Washington, and Miami; indeed, practically the entire state of Florida would be under water. Fifty million people in the US live below that sea level. Other places would fare worse. China would have 250 million displaced persons. Bangladesh would produce 120 million refugees, practically the entire nation. India would lose the land of 150 million people.

Rather discomfiting for Dr. Hansen, who thought we had "at most [...] ten years to alter fundamentally the trajectory of global greenhouse emissions," those blood-curdling visions of hundreds of millions of drowning urbanites have now gone fully a dozen years without coming to pass.

Not to be dissuaded from his task—and traipsing rather lightly past the Climategate scandal, in which University of East Anglia scientists were caught *in flagrante delicto* discussing the doctoring of data to match the received narrative on anthropogenic climate change—Hansen next tried to set a new tone for the climate Armageddonists. The Earth's failure to implode on cue led Hansen and others to blame the system instead. "The democratic process doesn't quite seem to be

¹ Hansen (2006).

working," he said in 2009, for example (The Guardian, 2009). Naomi Klein, author of *This Changes Everything: Capitalism vs. The Climate* (2014), connected the dots between Hansen's rantings and full-bore income redistribution, hyping the "People's Recovery," which attempted to shunt tax dollars into communities experimenting in "nonextractive living" and "new democratic processes":

Any attempt to rise to the climate challenge will be fruitless unless it is understood as part of a much broader battle of world-views, a process of rebuilding and reinventing the very idea of the collective, the communal, the commons, the civil, and the civic after so many decades of attack and neglect.

It would be hard to beat this orchestral crescendo of embarrassments to real scientific inquiry, this twisting of science into balloon animals shaped like either Chicken Little or Karl Marx. But in *The Best American Science and Nature Writing 2017*, series editor Tim Folger gives it a try. In large measure, he succeeds, calling into question whether "climate science" has not perhaps become an oxymoron.

First, a word about the 2017 iteration of the series. The editor for that year, Hope Jahren (the author of *Lab Girl* (2016)), has assembled a rather puzzling collection of genuinely interesting and valuable pieces, interspersed with tendentious politically-correct huff-puffing and special pleading. To take the good entries first, Robert Draper's essay (reprinted from *National Geographic*), "The Battle for Virunga," is a tightly-written piece on the intersection of economics, politics, and wildlife in the Democratic Republic of the Congo. David Epstein's *ProPublica* essay, "The DIY Scientist, the Olympian, and the Mutated Gene," tells the richly human story of Jill Viles, a muscular dystrophy patient whose extraordinary etiological insights helped track down important genetic information about lipodystrophy. And Ann Finkbeiner's "Inside the Breakthrough Starshot Mission to Alpha Centauri," taken from *Scientific American*, is a character-driven look at how new space technologies travel down the R&D pipeline. There are other fine essays in this volume, too: Tom Philpott's on the political economy of chicken farm antibiotics, Kim Tingley's on Polynesian navigation techniques, and Christopher Solomon's well-researched look at Bureau of Land Management machinations in the American West.

Unfortunately, Jahren's editorial heuristic, saturated in identity politics, leads her in the very unscientific direction of putting the scientist ahead of the science. This is especially odd, given that the writers who take the Cartesian plunge and delve into innerspace are forced to admit to having no idea who they are. Listless atheism marks Omar Mouallem's "Dark Science," for example. Ostensibly writing about light pollution and the efforts to combat it, Mouallem lets slip, "I once found myself in the middle of a field staring at a glistening sky. Had I still believed in him, I'd say it looked like God sneezed glitter." Azeen Ghorayshi's "He Fell in Love with His Grad Student—Then Fired Her for It" is the Glenn Close-esque tale of Christian Ott, a Caltech astrophysics professor who unburdens himself to his protégé about his deep-seated insecurities while publishing dozens of poems about her online. Sally Davies' "The Physics Pioneer Who Walked Away from It All" tells us about physicist Fotini Markopoulou, who avers that "between the truth of the physical world and a physics theory, there's humans. Of course, nothing happens there, because removing the person is the whole point of training as a scientist." And then there is Michael Regnier's heartbreaking true story of George Price, the man who literally did just that: removed himself, by killing himself in the name of the scientific study of altruism ("The Man Who Gave Himself Away").

But the real editorial knife-point of this book is its global warming agenda. Climate change crops up everywhere, from essays on Greenland ("A Song of Ice") to Alaska ("The New Harpoon"). However, the *pièce de résistance* is Nathaniel Rich's "The Invisible Catastrophe," reprinted from *The New York Times Magazine*. This is passive-aggressiveness cranked up to eleven. Here, Rich manages to take a story about a methane leak in Aliso Canyon, outside Los Angeles, and turn it into a *schadenfreude* smorgasbord, with Rich secretly reveling in the fact that the wealthy residents of Porter Ranch—many of whom are Republicans—are finally getting a taste of their own medicine by being sickened by greenhouse gases.

But even this essay pales in comparison with Folger's truly unhinged Foreword. Here, we find the favorite trope of the unscientific, namely, that everyone with whom one disagrees is a Nazi. Yes, a National Socialist. And not just any kind of National Socialist, but active, core members of the Party. To be more specific, bookburning Nazis. Here's Folger:

Modern cosmology was born in Germany a century ago, and within two decades of its birth it almost died there. When Albert Einstein published his general theory of relativity in November 1915, it's doubtful he could have imagined how profoundly deranged his country would become. On May 10, 1933—the same year Einstein left Germany forever—mobs of young Nazis and their supporters across Germany were feeding bonfires with his papers, along with works by Sigmund Freud, Thomas Mann, Bertolt Brecht, Erich Maria Remarque, and others supposedly contaminated with *undeutschen Geist*—un-German spirit. More than 25,000 books burned on that day, including those of the 19th-century Jewish poet and playwright Heinrich Heine, who had once written, “Where they burn books, they will also ultimately burn people. [...]”

Where is Folger going with all this? Who are the modern-day Nazis in our midst? Why, climate skeptics and Trump supporters, of course:

One measure of the health of any modern society must be the degree to which it supports its scientists. A few days before I started to write this foreword, hundreds of thousands of people in dozens of cities across the country participated in the March for Science. It was an event at once inspiring and worrisome: inspiring because so many took a stand for rationalism—a public rebuke to the nation's leaders that couldn't be more different from the German book burnings of the 1930s; worrisome because who would have thought that in the 21st century scientists and citizens would feel the need to gather in support of something so self-evidently valuable as unfettered scientific research?

Yet the march was necessary, urgently so. Scientists at more than a dozen federal agencies have launched rogue Twitter feeds to counter the policies of a frighteningly uninformed president who once tweeted that “global warming was created by and for the Chinese.” We live at a pivotal moment in history; [...] climate change threatens not just “the environment” but civilization itself.

Now, to be fair to Folger, he is hardly the only “scientist” to have had a Hitler-themed meltdown over thermometer readings in Queen Maud Land. We are fallen creatures, and we all let our passions get the better of us from time to time. Scientists are people too, and when they get caught rigging the deck so that every card comes up the Ace of Hockey Sticks, they are apt to lash out at the whistleblowers just like anyone else. If anything, in his extremism Folger is simply following in the footsteps of his fellow “earth scientists.” Like Jacques Cousteau, for instance, who once opined

that “world population must be stabilized and to do that we must eliminate 350,000 people per day.”

But there is much more to Folger’s brand of meteorological trolling than there might first appear. For example, there is the revealing research of William N. Butos and Thomas J. McQuade, whose 2015 paper on boom-and-bust cycles in the global warming industry shows the deep intertwinings of “scientific” research and the political economy. From the mid 1990s, global warming became a fashionable topic. From that point, governments increasingly began funding global warming-themed research to the exclusion of other projects. The much-touted “consensus” on global warming turns out to be little more than an illusion created by preferential funding by Washington and foregrounding by the United Nations Intergovernmental Panel on Climate Change (IPCC). As Butos and McQuade point out, science is supposed to be about hypotheses and experiments, but scientists turn out to be as susceptible to chicanery as politicians are once money for research starts to change hands.

Would that that were all. For what lies beneath even this fen of politicking under the rent veil of scientific disinterest is a deep uneasiness, felt most acutely by scientists themselves, over the true nature of their “scientific” enterprise. Folger is driven to accuse his critics of Nazism because he is afraid to confront their arguments head on. Why? Could it not be because of the epistemological bankruptcy of what passes as science?

Now, before the QJAE offices are deluged with hate mail, let me state that I am not a flat earther. I fully accept that pterodactyls and diplodocuses and trilobites were real, that the universe is billions of years old, that the earth goes around the sun, and that electricity is electrons, not voodoo. I also agree that carbon dioxide, methane, water vapor, ozone, and other substances are greenhouse gases, and that reducing the concentration of these gases in the atmosphere will reduce the greenhouse effect that they cause. I watched Mr. Wizard, too, and I am not here to dispute whether force equals mass times acceleration, or whether energy equals matter times the speed of light squared.

No, the claim I make here is much more serious than the denial of these facts would be. I am saying, in short, that scientists today, with rare exceptions, do not do science at all. They do sociology. As

Thomas Kuhn pointed out in *The Structure of Scientific Revolutions* (1962), for instance, science lurches and stalls through a series of paradigm shifts, with the behavior of scientists themselves being the real dark matter moving research and consensus. And Karl Popper, were he alive today, might be interested in applying the falsifiability criterion to wild speculations such as Hansen's and Folger's. The line between science and pseudoscience might lie much closer to the latter than many in the general public suspect.

I began this review by arguing that climate is complex. What we need, then, is a science capable of investigating it, and real scientists, for a change, who can rise above herd behavior and try to figure out exactly what is going on with all of those 1.09×10^{44} molecules in our atmosphere. What we do not need are any more quacks or snake oil salesmen who see science as a bandwagon and scientists as responsible for keeping everyone on board. On that note, Friedrich Hayek's *The Counter-Revolution of Science: Studies in the Abuse of Reason* (1952) would be a good place to start for learning the key difference between science and scientism, or the ill-starred attempt to bend science towards less noble ends than truth. Perhaps the next edition of *The Best American Science and Nature Writing* will heed some of Hayek's sound advice and feature much more writing of a scientific nature. But at the very least, let us hope that it has much fewer comparisons of honest dissenters—those who truly want empirical facts and dispassionate interpretations—to bookburning Nazis.

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