

"PLEASE READ THIS BOOK, AND THINK ABOUT IT. LET'S GET TO WORK." —BILL NYE

**DON'T  
EVEN  
THINK  
ABOUT  
IT**

**WHY OUR  
BRAINS  
ARE WIRED  
TO IGNORE  
CLIMATE  
CHANGE**

**GEORGE MARSHALL**

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# DON'T EVEN THINK ABOUT IT

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WHY OUR BRAINS ARE WIRED TO  
IGNORE CLIMATE CHANGE

GEORGE MARSHALL

B L O O M S B U R Y  
NEW YORK • LONDON • NEW DELHI • SYDNEY

*To Annie, Ned, and Elsa*

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# Questions

*In 1942 the Polish resistance fighter Jan Karski gave eye witness testimony to the Supreme Court judge Felix Frankfurter of the clearing of the Warsaw Ghetto and the systematic murder of Polish Jews in the Belzec concentration camp. Listening to him, Frankfurter, himself a Jew, and one of the outstanding legal minds of his generation, replied, “I must be frank. I am unable to believe him.” He added: “I did not say this young man is lying. I said I am unable to believe him. There is a difference.”*

What explains our ability to separate what we know from what we believe, to put aside the things that seem too painful to accept? How is it possible, when presented with overwhelming evidence, even the evidence of our own eyes, that we can deliberately ignore something—while being entirely aware that this is what we are doing?

These questions have fascinated me for all the years I have been working on climate change\*. They are what drew me to write this book and to spend years speaking with the world’s leading experts in psychology, economics, the perception of risk, linguistics, cultural anthropology, and evolutionary psychology, not to mention hundreds of non-experts—ordinary people I have encountered on the way.

At each step in this journey, as I tried to understand how we make sense of this issue, I uncovered other intriguing anomalies and paradoxes demanding explanation:

- Why do the victims of flooding, drought, and severe storms become *less* willing to talk about climate change or even accept that it is real?
- Why are people who say that climate change is too uncertain to believe more easily convinced of the imminent dangers of terrorist attacks, asteroid strikes, or an alien invasion?
- Why have scientists, normally the most trusted professionals in our society, become distrusted, hated, and the targets for violent abuse?
- Why is America’s most prestigious science museum telling more than a million people a year that climate change is a natural cycle and that we can grow new organs to adapt to it?
- Why are science fiction fans, of all people, so unwilling to imagine what the future might really be like?
- Why does having children make people less concerned about climate change?
- How did a rational policy negotiation become a debating slam to be won by the wittiest and most aggressive player?
- Why can stories based on myths and lies become so compelling that a president prefers to take his climate science advice from a bestselling thriller writer rather than the National Academy of Sciences?
- And why *is* an oil company so much more worried about the threats posed by its slippery floors than the threats posed by its products?

Through asking these questions I have come to see climate change in an entirely new light: not as

media battle of science versus vested interests or truth versus fiction, but as the ultimate challenge to our ability to make sense of the world around us. More than any other issue it exposes the deeper workings of our minds, and shows our extraordinary and innate talent for seeing only what we want to see and disregarding what we would prefer not to know.

I work for a small educational charity, advising other nonprofits, governments, and businesses on how they can better talk about a subject that most people don't really want to talk about at all. I spent most of my working life with people like myself—concerned, well informed, liberal minded environmentalists—so it was a pleasant surprise, while writing this book, to discover I often learned the most from the people who are entirely different from me.

Talking to Texan Tea Partiers led me to ask why we climate communicators have so singularly failed to connect with their concerns. Speaking to evangelical leaders made me question the boundaries between belief and knowledge. I have even enjoyed meeting the people whose life work, which they apply great dedication and creativity, is to undermine my own life work.

So I do not seek to attack the people who do not believe in climate change. I am interested in how they reach those conclusions, and I am just as interested in how believers reach and hold theirs. I am convinced that the real answers to my questions do not lie in the things that drive us apart so much but in the things we all share: our common psychology, our perception of risk, and our deepest instincts to defend our family and tribe.

These ancient skills are not serving us well. In this book I argue that climate change contains none of the clear signals that we require to mobilize our inbuilt sense of threat and that it is remarkably and dangerously open to misinterpretation.

I find that everyone, experts and non-experts alike, converts climate change into stories that embody their own values, assumptions, and prejudices. I describe how these stories can come to take on a life of their own, following their own rules, evolving and gaining authority as they pass between people.

I suggest that the most pervasive narrative of all is the one that is not voiced: the collective social norm of silence. This response to climate change is all too similar to that other great taboo, death, and I suggest that they may have far more in common than we want to admit.

I argue that accepting climate change requires far more than reading the right books, watching the right documentaries, or ticking off a checklist of well-meaning behaviors: It requires conviction, and this is difficult to form and even harder to maintain. It took me many years to reach my own personal conviction that climate change is real and a deadly serious threat to everything I hold dear. This is not easy knowledge to hold, and in my darker moments I feel a deep sense of dread. I too have learned to keep that worry on one side: knowing that the threat is real, yet actively choosing not to feel it.

So I have come to realize that I cannot answer my questions by looking too long at the thing that causes this anxiety. There are no graphs, data sets, or complex statistics in this book, and I leave a discussion of possible climate impacts until a final postscript at the very end. This is, I am certain, the right way around. In the end, all of the computer models, scientific predictions, and economic scenarios are constructed around the most important and uncertain variable of all: whether our collective choice will be to accept or to deny what the science is telling us. And this, I hope you will find, is an endlessly disturbing, engrossing, and intriguing question.

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# We'll Deal with That Lofty Stuff Some Other Day

## *Why Disaster Victims Do Not Want to Talk About Climate Change*

Wendy Escobar remembers feeling slightly nervous as she set off with her children to pick up groceries and saw the distant spiral of smoke on the horizon. But she says she never, ever, could have anticipated the speed or intensity of the disaster that followed. By the time she returned an hour later, the police had erected barricades across Texas State Highway 21. She had nothing but the clothes on her back; her daughter, she recalls, was still in her slippers. Two weeks later, when the road was finally reopened, the only family possession she could find in the ashes of the house was her great-grandfather's Purple Heart medal. It was melted almost beyond recognition.

The Bastrop wildfire of October 2011 was exceptional by any standards. Supercharged by thirty-mile-per-hour winds during a period with the lowest annual rainfall ever recorded, it killed two people, burned fifty-four square miles of forest, and could be seen from outer space. It destroyed 1,600 houses; ten times more than any previous wildfire in Texan history.

What was curious, though, was that, when I visited Bastrop a year later not one person, in a string of formal interviews, could recall for me a single conversation in which they had discussed climate change as a potential cause of the drought or the fire.

As one would expect in rural Texas, many people were unconvinced about the issue: many people but not all. Wendy Escobar, for example, who laughed about "us being all rednecks out here," is an intelligent and thoughtful woman who has seen the changes in the weather and concluded that there is definitely something going on that science can explain. The mayor of Bastrop, Terry Orr, accepted the science that the climate is changing, though he was understandably wary of an issue that can be so politically divisive. Neither could recall it ever being discussed.

Cyndi Wright, the editor of the *Bastrop Advertiser*, was more doubtful, suspecting that the extreme weather was part of a natural cycle. She thought it was entirely inappropriate for discussion in her newspaper. "This is a community newspaper," she told me. "Sure, if climate change had a direct impact on us, we would definitely bring it in, but we are more centered around Bastrop County."

*If climate change had a direct impact on us?* This is surprising, that a journalist could not see any possible connection between the wildfire that had burned down her own house and an issue that scientists had, for twenty years, been warning would lead to increasing droughts and wildfires. Even Texas state climatologist John Nielsen-Gammon, who chose his words carefully, suggested the link and regarded the combination of extreme drought and record-breaking temperatures that fueled the fires as being "off the charts."

Of course no scientist will ever be able to say with total certainty that any single weather event

caused by climate change. But why does this prevent all discussion? What other topic is shut down because of a lack of total scientific certainty? Newspapers usually encourage debate, often informed. Conversations are fueled by hunch and rumor. As I explore later, the lack of certainty is invariably an excuse for silence rather than the cause of it.

Nor were the people of Bastrop short of other things to say about the fire, including some highly conjectural opinions about who started it. Above all though, what they really wanted to share with me was their pride in their community and their capacity to overcome challenges. They spoke of the many acts of kindness, altruism, and generosity from strangers. Wendy Escobar told me how a customer at her cousin's hair salon in Longview sent her a thousand-dollar check in the mail. "The coolest thing to come out of the fire," she said, "was finding out how much people really cared, and how it's made people pull together so much."

One year later, Hurricane Sandy, the largest Atlantic hurricane on record, damaged or destroyed nearly 350,000 homes as it hit the New Jersey seashore. When I visited five months later, the destruction could still be seen everywhere in the small towns that line the shore.

In Seaside Heights the tangled remains of a roller coaster still lay out to sea, where it had fallen after the pier beneath it collapsed. Block after block of pastel-painted wooden houses were dark and abandoned, many homes twisted off their foundations or lying at crazy angles. Thirty miles north, in the small town of Highlands, the residents of the absurdly named Paradise Trailer Park had faced the full fury of the hurricane—one of them told me that he had survived the storm surge by sitting on top of his refrigerator. Now they had wrecked homes, no insurance payouts, and nowhere to go while the park's owner tried to evict them and redevelop the site.

In Sea Bright, just south along the coast, every shop on the main street was gutted, and the seawall was demolished. Two-thirds of the permanent residents were still homeless when I visited, and only eight of the hundred registered local businesses were back up and running.

Certainly, people were more inclined to accept that climate change exists in the Democrat territory of New Jersey than they were in Republican Texas. Dina Long, the charismatic mayor of Sea Bright, agreed that the frequency and power of the storms is changing and that the sea level is rising. Nonetheless, she could not recall anyone in her community discussing climate change in regards to the storm.

When I suggested to Long that she might band together with the leaders of other affected communities and demand federal action on climate change, she rolled her eyes. "Have you *seen* what Sandy did?" she demanded. "Climate change, *duh*, of *course* it is happening. But it is bigger than anything we could make a difference on. We just want to go home, and we will deal with all that looting stuff some other day."

As in Bastrop, Texas, the dominant narrative all along the Jersey Shore was one of community cohesion and resilience. As Dina Long warmed to this theme, she flourished a small piece of plastic salvaged from Donovan's Reef, a landmark beachside bar. It is all that remains of the sign that used to hang over the door—a small fragment with two letters on it: "DO." Long brings out this talisman at every talk she makes to the townsfolk, media, and investors. It became the slogan of the Sea Bright Rising campaign and duly appears on T-shirts and posters around the town.

The strong sense of local pride I found in Bastrop and Sea Bright is entirely consistent with that found in other areas after disasters. Contrary to expectations, people rarely respond to natural disasters with panic, and there is often a marked fall in crime and other forms of antisocial behavior. People consistently tend to pull together, displaying unusual generosity and a sense of purpose.

These are times when people are most inclined to seek common ground and actively suppress the

divisive and partisan issue of climate change. To talk about it seems inappropriate and exploitative just as many people—President Obama’s spokesman among them—refused to talk about gun control after the Sandy Hook school shooting.

The pain and loss of the event generates an intensified desire that there be a “normal” state to which one can return, making it even harder for people to accept that there are larger changes under way. The decision to stay, rebuild, and reinvest in that normality is accordingly validated by the community.

After losing all of his stock during Hurricane Sandy, Brian George, the owner of Northshore Menswear in Sea Bright, hung a sign outside his shop saying, “We love Sea Bright—we’ll be back.” After he reopened, business was great, he said, with many people buying something simply to thank him for staying. He accepted that climate change could bring more disasters but said he is resigned to it. “This is my home,” he said, “and I guess we’re just hoping another one doesn’t come along any time soon.”

Across the road, Frank Bain of Bain’s Hardware also lost all of his stock—and found that his insurance did not cover floods. “I would have been better off if I’d burned the building down,” he said bitterly. Bain, a much-loved pillar of his community, is a Republican and “no fan of Al Gore or his spotted owl,” so he had always been unconvinced about climate change. After Hurricane Sandy, though, he had even stronger reasons for wanting to believe that it was just a rare extreme of nature. Not only had he rebuilt his store out of his savings, but he was “self-insuring”—putting money aside in the bank each year and hoping that the next storm was a long way off. He accepted that this was a gamble, but then again, being in business is a gamble, he said. “This is just how free enterprise works.”

The extreme events themselves had already seemed like a gamble. In Bastrop and New Jersey alike everyone was perplexed about how the wildfire or storm surge could destroy some houses and leave others untouched. “It was like Russian roulette,” said Sharon Jones, sharing a birthday drink with her husband at the one bar still operating in Seaside Heights. Her house was entirely destroyed; the house across the road was left almost untouched. “Go figure,” she said, raising her glass to the vagaries of fate.

After a disaster like Sandy or the Bastrop wildfires, people are presented with a stark choice about whether to admit defeat and leave or whether to stay and rebuild. When they decide to stay, as most people do, they are taking a gamble, and like any gamble, it predisposes them to undue optimism about the future and their own chances.

Psychological research finds that people who survive climate disasters, like people who escape car accidents unscathed, are prone to have a false sense of their own future invulnerability. A large field study in an Iowa town that had been hit by a Force 2 hurricane found that most people had become convinced that they were less likely to be affected by a future hurricane than people in other towns. The people in the areas that had suffered the most damage were often the most optimistic. So it is hardly surprising, following the extreme floods in 2012 in Queensland, Australia, that few people made any attempt to reduce their vulnerability to flooding, and many residents chose instead to spend their disaster relief and insurance premiums on general home improvements such as installing new kitchens.

Revealingly, then, extreme weather events provide an initial insight into why and how people come to ignore climate change. At every stage their perceptions are shaped by their individual psychological coping mechanisms and the collective narratives that they shape with the people around them.

People yearn for normality and safety, and no one wants to be reminded of a growing global threat.

As they rebuild their lives, they invest their hopes along with their savings in the belief that the catastrophe was a rare natural aberration.

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At a community level they collectively choose to tell the positive stories of shared purpose and reconstruction and to suppress the divisive issue of climate change which would require them to question their values and way of life.

On reflection, it is hard to imagine any social environment in which a narrative of responsibility, austerity and future hardship would be less welcome than a community recovering from a climate disaster.

## Speaking as a Layman

### *Why We Think That Extreme Weather Shows We Were Right All Along*

“Unprecedented, unthinkable. The devastation is staggering. I struggle to find words.” Choking back his tears, Yeb Saño, head of the Philippine government delegation, told the opening session of the November 2013 Warsaw Climate Change Conference of the devastation caused when Typhoon Haiyan hit his country three days earlier. He announced that he would fast in solidarity with the orphaned, the dead, and his own brother, who, he said, had still not eaten and had been gathering the bodies of the dead with his own hands. “To anyone who continues to deny the reality that is climate change, I daresay you to get off your ivory tower and away from the comfort of your armchair and pay a visit to the Philippines right now.”

Climate change can seem distant, uncertain, and incomprehensible. Saño made it seem real and immediate, and deeply moving. These personal stories and strong images, compounded by the constant repetition they received through the news media, spoke far more strongly to our sense of empathy and direct threat than the abstract data of graphs and scientific reports.

This is why climate change communicators are convinced that extreme weather events can, in the words of Elke Weber, an environmental risk specialist at Columbia University, “be counted on to be an extremely effective teacher and motivator.” Tony Leiserowitz, director of the Yale Project on Climate Change Communication, calls them “teachable moments.” Michael Brune, the executive director of the Sierra Club, tells me that he sees severe weather as a kind of direct action. “Obviously,” he stresses, “not in an organized or manipulative way—these are tragic events—but with the same capacity to change consciousness and political direction.”

Extreme weather events have already played a major role in the political momentum on climate change. In 1988, a severe drought and heat wave across the Midwestern states provided the backdrop for Dr. James Hansen of NASA to declare in a congressional hearing that there was a 99 percent certainty that global warming had already started. The rise of consciousness about climate change in Europe that led to the signing of the Framework Convention on Climate Change in 1992 was helped enormously by severe storms in the spring of 1991, which were freely interpreted by the media as a warning of the climate change to come.

Those campaigning for action on climate change do everything they can to keep these connections alive in the public’s minds. As mayor of New York City, Michael Bloomberg personally approved the cover of the November 1, 2012, *Bloomberg Businessweek*, with a picture of Hurricane Sandy and bold block text reading, “IT’S GLOBAL WARMING, STUPID.” Referring to Hurricane Sandy, Al Gore said, “These storms—it’s like a nature hike through the Book of Revelation on the news every day.”

now. People are now connecting the dots.”

Environment America global warming program director Nathan Willcox is also convinced that “the more Americans see extreme weather events in their backyards, the more they will reach out to the politicians for action.” However, his own research suggests that the relationship between experience and conviction is far from straightforward. In the seven years up until 2012, the Great Plains were consistently, and by a wide margin, the region worst affected by climate-related disasters. Nonetheless, in the 2010 Senate elections, all the winning Republican candidates for the Plains states publically refuted climate science or opposed action to reduce greenhouse gas emissions.

Across the entire United States, the state most consistently affected by extreme weather has been Oklahoma. In 2008, voters there were offered a clear choice in their Senate election between Andre Rice, a Democrat candidate with a moderate but balanced acceptance of climate change, and incumbent James Inhofe, the most active and aggressive climate denier in the Senate. In a year when national concern about climate change was at an all-time high, Inhofe still won by a large margin. In the five Oklahoma counties that were experiencing, on average, more than one federal declared weather emergency every year. As I write this, the so-called polar vortex is sweeping across the Midwest, and temperatures in Nowata, Oklahoma, have just fallen to 31 degrees below zero, three degrees lower than the previous state record. They keep getting hit and they keep voting for Inhofe.

Inhofe is as keen as any other campaigner to use climate events as a “teachable moment” for his own arguments. In February 2010, when an extreme blizzard deposited two feet of snow on Washington, D.C., Inhofe enjoyed some interactive family fun with his grandchildren by building an igloo on the National Mall. Alongside it, he erected a sign reading, “Al Gore’s New Home!” and “Honk If You’re a Global Warming.”

At the same time, the West Coast was experiencing record-breaking warmth that forced organizers of the Winter Olympic Games in Vancouver to run fleets of trucks and helicopters, day and night, to bring in snow for the freestyle skiing and snowboarding events. Across North America as a whole, there was enough evidence available to support any number of positions on climate change. May 2010 *New York Times* columnist Thomas Friedman described the overall situation best when he simply called it “global weirding.”

The problem is that, in a field normally dominated by technical specialists, weather events appear to be well within the range of laypeople’s personal expertise. We might be in no position to judge the levels of trace greenhouse gases in the atmosphere, or sea levels, or the extent of glaciers, but we do think we know about the weather.

This is especially true in Britain, where, for some inexplicable reason, variations in our bland, damp weather are the subject of intense public interest. In his weekly opinion column in the *Daily Telegraph*, a national conservative newspaper, London mayor Boris Johnson pontificated on his own climate expertise:

Two days ago I was cycling through Trafalgar Square and saw icicles on the traffic lights; and though I am sure plenty of readers will say I am just unobservant, I don’t think I have seen that before. Something appears to be up with our winter weather, and to call it “warming” is obviously to strain the language.

Johnson likes to cycle around town noticing things. When Franny Armstrong, director of the climate change documentary *The Age of Stupid*, was attacked by muggers, she was astonished to see the huge, wild-haired bulk of the London mayor cycling into view, shouting, “Clear off, you oiks!” Johnson

public persona, you see, is that of a decent, up-for-a-laugh sort of fellow who makes up his own mind on the basis of common sense.

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Johnson concluded his column, no doubt resonating like a tuning fork with the middle-aged conservative readership of the *Telegraph*, by writing, “I am speaking only as a layman who wonders whether it might be time for government to start taking seriously the possibility—however remote—that the skeptics are right.”

Because weather events can never be ascribed with certainty to climate change, we are therefore prone to interpret them in light of our prior assumptions and prejudices. If we regard climate change as a myth, we regard variable and extreme weather as proof that weather can be naturally variable and extreme. If we are disposed to accept that climate change is a real and growing threat, we are liable to regard extreme weather as evidence of a growing destabilization.

These selective processes are called *biases* by cognitive psychologists because they draw on preformed assumptions and intuitions to influence decisions. *Confirmation bias* is the tendency to actively “cherry-pick” the evidence that can support our existing knowledge, attitudes, and beliefs. These create a mental map—what psychologists would call a schema—and when we encounter new information we modify it to squeeze into this existing schema, a process psychologists call *bias assimilation*. We exercise both of these biases of selection and modification compulsively: to confirm our choice of restaurant, the attractiveness of our partner, the cleverness of our children, and to prove to ourselves that we have been “right all along” or that some personal mistake is “not as bad as that.” These two terms are subtly different in their academic usage, but, for ease of reading, I will use just one term for both: “confirmation bias.”

Research finds that both of these cognitive biases are guiding our interpretation of extreme weather events and climate science as a whole. When asked about recent weather in their own area, people who are already disposed to believe in climate change will tend to say it’s been warmer. People who are unconvinced about climate change will say it’s been colder. Farmers in Illinois, invited to report their recent experiences of the weather, emphasized or played down extreme events depending on whether or not they accepted climate change.

Researchers discovered similar patterns in Britain. Interviews with flood victims in England found that their interpretation of the event largely depended on their views on climate change, and a wider poll found that Labour Party voters were twice as likely as Conservative voters to ascribe extreme weather to climate change. Consistent with my observations in Texas and New Jersey, people who have been personally affected were significantly less likely overall to ascribe it to climate change than those who were far away from the flooding.

Attitudes toward climate change are so politically polarized that it is not surprising that independents are the most likely to form views drawn from their direct experience of the weather. Sociologists at the University of New Hampshire found that 70 percent of independents were inclined to believe in human-caused climate change when they were asked about it on an unseasonably warm day. On abnormally cold days, that fell to 40 percent.

These contextual decisions display yet another form of bias—*availability bias*—that disposes people to make up their mind on the basis of the evidence that is most readily at hand. It can be just as misleading as any other form of confirmation bias, leading people to hugely overestimate the danger of recent events and disregard the threat posed by more distant ones that they have not experienced.

Despite these biases, Tony Leiserowitz at Yale remains convinced that the teachable moment of changing weather is changing attitudes over the long term. He cites his own research showing that around two-thirds of Americans believe that global warming made specific extreme weather events

worse. The highest number, not surprisingly, agree that the heat wave of 2011 and the warm winter of 2010–11 were linked to global warming.

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These polls show that extreme weather is affecting ever-larger numbers of people and prompting them to consider climate change when the subject is raised. The larger question, though, is whether the growing experience of extreme weather will bring people together in a shared commitment to action or whether their confirmation bias will push them even further apart. And if the weather extremes continue to intensify, whether the experience of coping with loss and anxiety will make people push it aside as something that they would rather not think about.

As the changes in the climate accelerate, new opportunities are emerging for us to engage or deny them. Extreme weather events of entirely unprecedented scale and duration are now occurring regularly. Climatologists may be reluctant to ascribe a single weather event to climate change but are far more willing to agree that it is influencing widespread patterns of ever more extreme and bizarre weather.

As I complete this book, hail is falling in Cairo, snow in Israel, Syria, and Jordan. The United States is having the most extreme arctic cold it has ever experienced. Meanwhile Scandinavia has recorded high temperatures, and Australia is entering its second year of unprecedented drought after temperatures reached so high that weather forecasters created a new color scale for the weather map to accommodate them. Britain is ringed with more than a hundred flood alerts, and my hometown Oxford has just had the wettest January since record keeping began in 1760. The day after I visited my nearby seaside town, the entire seafront was ripped apart by thirty-foot waves. The locals say they have never seen anything like it.

But they are still not talking about climate change. What *is* going on?

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## You Never Get to See the Whole Picture

### *How the Tea Party Fails to Notice the Greatest Threat to Its Values*

I spend almost all of my working life with people who understand and accept climate change, so I decided to spend some time with people who are no less passionate in their conviction that we are completely wrong. This was how I came to find myself cruising along Texas State Highway 71, some thirty miles south from Bastrop, in the largest car I have ever seen: a seven-ton Ford Excursion, a car so huge that you need to lower a step before you can even climb inside.

My companions have little patience for environmentalists like me. We are arrogant, so arrogant they said, to even think that we humans could possibly change this beautiful land enough to affect the world's weather systems. Our differences are directed by the selective vision of our respective confirmation bias—ironically the views to the left and right of our speeding SUV. Looking to the *right* they saw the wide-open fields and woodlands. Looking to the *left* I saw the railroad track that runs alongside the highway and a coal train reaching the end of its thousand-mile journey from Wyoming. The train was so long that I could see neither the front nor end, though I could see, silhouetted by the setting sun, the smoke stacks of its destination, the Fayette Power Project, pumping as much carbon dioxide into the air as the entire nation of Guatemala.

We were heading for the ranch home of Debra Medina, the feisty, fast-talking, take-no-prisoners mother of four who won one-fifth of the state vote as a wildcard candidate in the 2010 Texas gubernatorial election. On the first Friday of every month, forty Tea Party activists gather at her house to share home-baked food, their visions, and their frustrations—and to have a good laugh. It was with some trepidation that I accepted Debra's invitation to talk with them about climate change. I enjoy challenging audiences, but rarely ones that are this opinionated. Or this well armed. During her campaign for governor, Medina appeared across Texas TV channels waving her semiautomatic pistol which is always loaded and ready to go. "It stays right here beside my car seat, where I can reach to it easily," she told the cameras, lifting the flap between the front seats where normal people keep their small change.

Scarcely two weeks before my visit, the Texan Republicans released their policy platform calling for protection from "Extreme Environmentalists," who purposefully disrupt the oil and gas industry and demanding that climate change should be taught in schools only as "a challengeable scientific theory subject to change." This was going to be new territory for a former Greenpeace campaigner who founded a climate education charity.

So I presented Debra with a peace offering between our rival tribes: a King Edward VII tea caddy and asked her to cough up two centuries in unpaid tax. Luckily, they laughed. Then I said, tell me wh

you think about climate change.

~~They hated *everything* about climate change: they hated the science, the scientists, Al Gore (especially Al Gore “and his garbage”), the United Nations, the government, solar power, the hypocritical environmentalists.~~

It was soon clear that climate change, or rather the narrative they had constructed around it, fit perfectly into a set of pre-existing ideological grievances about the distribution of power. The word they kept using was “control.” James said that “carbon is a universal element that the government wants to control.” Denise added that climate change “is a convenient crisis. The government is using this as a tool of control.” David said that the whole thing has been invented to create a “global tax for a one-world government”—this was clearly a familiar phrase and several people joined in to say it at the same time.

Which brought us rapidly to Agenda 21, a long, dull, and largely forgotten resolution proposing local goals for sustainable development that emerged from the 1992 U.N. Conference on Environment and Development. To the Tea Partiers, Agenda 21 is the constitution for a one-world government containing the detailed plan for how “they” will create the issue of climate change to control us and suppress our local freedoms. It is unthinkable to them that there would not be a constitution of some kind for global dominance—after all they regard the U.S. Constitution as a sacred text and can quote from memory. After the meeting, Dave signed his own copy and presented it to me. It was exactly the same color and shape as my British passport, causing predictable confusion later on in my travels.

But even with a written constitution to hand, the truth remains complex and elusive, because, they tell me: “You never see the whole picture—you have to draw the line a little segment at a time.” They maintain that they have to be constantly vigilant and ask questions: “We’re not anti-intellectual people in this group. We want to know the truth. We think outside the box and search for our own answers.”

And they certainly ask a *lot* of questions—it is a hallmark of their conversational style. People’s statements frequently broke down into a string of questions: Which way is the wind blowing? Where does the money come from? What happened to the scientists? What happened to their opinion? Could they also have been misled? Or they could be mistaken? What’s the baseline? What is normal? What was normal? Was there ever supposed to be a normal?

This admirable willingness to challenge things makes them feel somewhat superior to other people. They said that the reason people believe in global warming is that they aren’t logically minded and are “just not educated properly at school anymore.”

Like climate scientists, or environmentalists, these Tea Partiers stress the overwhelming importance of information. The problem is that it is so hard to get the right information—meaning they have to get it from people who share their values: “My favorite radio show host, Dave Champion, always says ‘The government lies. It lies all the time, and it lies even when the truth would serve it better.’” So, since the conventional providers of information are corrupt and suspect, and, they say, scientists know a little too well that “if you can get the population scared to death, they will be willing to write a check for their research.”

*Passion* is a word they use frequently: “The passion is not that we cover our ears with our hands and don’t want to hear the facts. The passion is we don’t want to be controlled.” They are especially passionate about their independence. One man said, “I’m not with the environmentalists. I’m not with the oil companies. I did not come to take sides; I came to *take over!*” Everyone loved this, and the whole room erupted into laughter, claps, and cheers.

It is easy to focus on differences, and certainly rural Texan Tea Partiers are quite unlike urban

liberal environmentalists. But the real surprise for me was to discover that being with them felt entirely familiar. They have exactly the same boisterous, opinionated, autodidactic, and tribal spirit as the grassroots environmental campaigners I have worked with in campaigns to save forests, stop open-pit coal mining, block new superstores, and, yes, demand action on climate change.

And they have plenty in common with environmental activists in their political instincts. They are outsiders driven by their values, defensive of their rights, and deeply distrustful of government and corporations: ExxonMobil and Monsanto both came up for attack in our conversation. Indeed, strange alliances had already been built around the campaign against the Keystone XL pipeline, which was opposed by environmentalists for its contribution to the carbon economy and by the Texas Tea Partiers for its use of eminent domain to seize land from property owners.

While the Tea Partiers had lots of questions, I left with just one of my own: What had led them to reject the one issue that, above all others, truly threatens the things that are most important to them—family, property, freedom, their beloved country, and God's creation—one, what is more, that has reached this critical stage because of the thing they hate the most: government and corporate self-interest?

Is it because climate change feels too far away? Perhaps, though the Tea Partiers are quite prepared to agitate about other complex international issues that catch their fancy. Is it because they feel powerless to do anything about it? Probably not, as they seem to thrive under conditions of powerlessness. Is it because it is depressing and frightening? Hardly: The entire Tea Party movement is built on fear and the warnings of disaster.

Is it because it is scientific and technical? No, these are people who willingly seek out information. Is it because climate change is contested and uncertain? Absolutely not: To be honest, the Tea Partiers appear to be entirely capable of believing any number of uncertain things on very limited evidence.

The answer must lie elsewhere—not with the issue itself but with the way it has been told. It must be something about the way the story of climate change has been constructed and communicated, the people who tell it, and how it has attached itself to their values.

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## Polluting the Message

### *How Science Becomes Infected with Social Meaning*

Professor Dan Kahan, the leading light of the Yale Cultural Cognition Project, is an expert on how conflicting cultural values influence decision making. So when I notice that a garish plastic figurine of Gene Simmons from the 1980s übercamp rock band Kiss has taken pride of place on the mantelpiece of his sober Yale Law School study, I ask him if this is some ironic academic joke—maybe a comment on the disjuncture between Simmons’s support for George Bush and his anti-authoritarian stage persona? “Nah,” Kahan says, “I just like him . . . because he *rocks!*”

This is how Kahan speaks—at very high speed, in a hyperintelligent soup of cognitive jargon and hip slang. Clearly he is not someone who fears challenging conventions or crossing cultural boundaries.

For Kahan, the defining quality of climate change is not any lack of overall concern—he says there is plenty of that. Nor does he agree with the opinion of many activists that the key influence on attitudes is the politicization of the media coverage. “Face it,” he says, “even if it does get mentioned on MSNBC or Fox News, ten times more people will always be watching funny animals.”

Kahan is a cultural omnivore and is intrigued by funny animal videos. He urges me to watch “The Crazy Nastyass Honey Badger” on YouTube because “it’s even more bad-ass than Gene Simmons.” More than sixty-five million people have watched that honey badger video. Over on the Intergovernmental Panel on Climate Change channel, the climate scientists have a hard time reaching an audience numbering in the four digits with their decidedly un-crazy-ass slideshows.

For Kahan, the reason why people do not accept climate change is nothing to do with the information—it is the cultural coding that it contains. He argues that people obtain their information through the people they trust, or, beyond that, from the parts of the wider media that speak to their worldview and values. Most of the time, this is a highly effective shortcut and works fine, unless, in Kahan’s words, the information becomes “contaminated” with additional social meaning and becomes a marker of group identity.

Kahan cites gun control as a case in point. Polls in West Virginia show that 65 percent of people want more gun control but, he says, you would be a fool to run for election in that state campaigning for gun control. “What you don’t know—and no poll has told you—is that 85 percent of people in West Virginia know that you can’t *trust* politicians who say that they want gun control.”

Attitudes on climate change, he argues, have become a social cue like gun control: a shorthand for figuring out who is in our group and cares about us. Just because polling shows a high level of concern about the issue does not mean that there is an equally high level of support for the people who promote it.

Kahan’s extensive work on understanding people’s resistance to vaccination forms a direct analogue

for how they form their opinion on climate change. There are few issues in which the science has become so contaminated so rapidly. In Britain a single research paper in 1998 arguing that the combined mumps, measles, and rubella (MMR) vaccine might cause autism in children was accepted as proof by one-quarter of the public, and immunization rates plummeted. Scientific data was soon abandoned in the dirty public battle that contrasted the cold, mechanistic approach of the scientists with the raw emotional appeal of the parents convinced that their children had changed immediately after their immunization shot. Fifty percent of people took the presence of a media-generated debate as evidence that the science was in doubt.

In the United States, there was a similar disaster when the state of Virginia decided that the package of compulsory vaccinations for entry into middle school should include one against human papillomavirus, a very common sexually transmitted disease that causes cervical cancer.

So, you have the government knocking at the door of a conservative Christian community, saying according to Kahan, “You know your twelve-year-old daughter? Well, she’s going to be having sex the next year and getting a venereal disease, so we’re going to give her a shot. And if you don’t like that, she can’t come to school.” This was a toxic brew of government interference, moral challenge, and offensiveness.

The lessons for climate change are clear. First, rational scientific data can lose against a compelling emotional story that speaks to people’s core values. As I discuss later in the book, these cultural meanings become deeply attached and therefore cannot be removed by applying more scientific argument.

Second, communications from people’s family, friends, and those they regard as being like themselves (their peers) can have far more influence on their views than the warnings of experts’.

Third, attitudes toward climate change fit into a larger matrix of values, politics, and lifestyle. Thus, as Kahan, Leiserowitz, and others at Yale argue, there are identifiable “interpretive communities”: people who believe or disbelieve in climate change—and one can predict with some accuracy who they are, how they live, who they trust, and where they receive their information. Over the past ten years, detailed profiles have emerged.

*Homo credens* (the convinced) are most likely to be middle-age, college-educated liberal Democrats. Women are more likely to be believers, which is consistent with the observation that women tend to be responsive to other health, safety, financial, and ethical risks.

*Homo negator* (the unconvinced) are almost always strongly conservative in politics—very few are not—and tend to be from the more affluent and powerful social groups. They are very likely to be men and may display a low level of risk perception in other areas. This is a familiar group to risk researchers, who have named the “white man effect” after the danger that men in this group can seriously distort their social research.

Putting it together, one could predict that middle-age male motorbike riders are not well disposed to believe in climate change even before reading a Canadian survey that found that, indeed, two-thirds of them did not accept climate change.

Many other studies have identified further attitudinal subgroups (one study names them the Cautious, the Doubtful, the Alarmed, and the Disengaged) each with their own sociopolitical demographic and distinct values.

The fact that attitudes to climate change can be predicted by such specific cultural characteristics provides further evidence for Kahan’s argument that the science has become polluted with social meanings. Understanding how attitudes to climate change are acquired and held—and how they might be changed—therefore requires understanding how people’s social identity comes to have such a

extraordinary hold over their behaviors and views.

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## The Jury of Our Peers

### *How We Follow the People Around Us*

In the early hours of the morning of March 13, 1964, Kitty Genovese was assaulted and then stabbed repeatedly in a densely populated residential area of Queens, New York. Thirty-eight people (one of them ironically named Joseph Fink) said they had heard her screams and done nothing to intervene. One man lamely shouted, “Let that girl alone,” out of his window before going back to bed. Another pulled a chair up to the window and turned out the light to better see what was happening. No one thought to call the police until it was too late.

Rather than being a sad testament of a broken society—as the newspapers of the day suggested—this lack of response actually revealed the strength of social conformity. People read the social cues. They saw that no one else was taking any action and decided that it was in their best interest to keep out of a potentially dangerous situation. Knowing that others had heard the cries, they diffused responsibility, assuming, quite wrongly, as it turned out, that someone else had called the police.

The tragic Genovese incident launched a rich and still expanding body of research into the importance of social cues in defining what issues people respond to and what ones they ignore. It is a fascinating feature of this *bystander effect*—as it was subsequently named—that the more people we assume know about a problem, the more likely we are to ignore our own judgment and watch the behavior of others to identify an appropriate response.

A string of experiments confirmed the power of the bystander effect. In one particularly entertaining experiment, an actor faked having a seizure over the laboratory intercom. The last words heard from him were “I could really—er—use some help, so if somebody would—er—give me a little h-help u er er . . . I’m gonna die,” followed by a choking noise and silence. Of fifteen participants in the experiment, six never got out of their booths, and five others only came out well after the “seizure victim” apparently choked.

Of course, you can only run these kinds of experiments for a few years before your subjects start to get wise to the trick, especially if they are psychology students. Years later, when a subject in a psychology experiment had a real epileptic fit, the other participants were convinced that it was being faked for the experiment and refused to get off their chairs.

Climate change is a global problem that requires a collective response and so is especially prone to this bystander effect. When we become aware of the issue, we scan the people around us for social cues to guide our own response: looking for evidence of what they do, what they say, and, conversely, what they do *not* do and do *not* say. These cues can also be codified into rules that define the behaviors that are expected or are inappropriate—the social norm. If we see that other people are alarmed and taking action, we may follow them. If they are indifferent or inactive, we will follow that cue too.

This social conformity is not some preference or choice. This is a strong behavioral instinct that

built into our core psychology, and most of the time we are not even aware that it is operating. ~~originated as a defense mechanism during our evolutionary development, when our survival depended~~ entirely on the protection and security of our social group. Under such conditions, being out of sync with the people around us carried a potentially life-threatening danger of ostracism or abandonment.

There are, therefore, real and serious risks involved with holding views that are out of step with your social group and your brain is wired to give them greater weight than other risks, even those that directly threaten you. In experiments on social conformity, people chose to adhere to a social norm even under conditions when there was a real and imminent external threat, such as smoke coming from under the door.

So if your views on climate change differ from the socially held views, you find yourself balancing two risks: the uncertain and diffused risk of climate change as opposed to the certain and very personal social risk of opposing the norm. As I will show, people often decide that it may be better to say nothing at all about climate change, even with their close friends.

Although conformity is important for functioning societies, a small number of dissenters are required to identify new threats. In the famous Hans Christian Andersen story “The Emperor’s New Clothes,” a small boy has been given the social license to declare that the emperor is naked. Andersen based his story on a Spanish folk tale in which a Moor (an African Muslim) was permitted, by virtue of his outsider status, to defy the social norm. In our own times, nonprofit organizations, such as environmental and human rights organizations, are given some license, even in repressive societies, to raise challenging questions, providing that they remain peripheral.

Andersen added his own astute variation to the original Spanish tale. After the boy shouted about the Emperor’s nakedness, “the Emperor was vexed, for he knew that the people were right; but he thought the procession must go on now! And the lords of the bedchamber took greater pains than ever, to appear holding up a train, although, in reality, there was no train to hold.”

The final moral of “The Emperor’s New Clothes,” then, is that these social norms are highly resilient to change—even when the norm has been effectively challenged, the social cost of admitting a mistake and the effort required to change a behavior may be so great that it is easier to continue with a known lie.

One way of ensuring against such a challenge is to surround yourself with people who agree with you. In our dispersed and media-driven society, people are able to immerse themselves in a self-constructed social network where the norm is entirely consistent with their own views. They restrict their information sources to carefully selected news media, websites, blogs, and publications—the so-called echo chamber—that reinforce their views. Tea Party members and environmental activists alike share a distrust of the mainstream media and depend on information sources that speak specifically to their interests and values.

Researchers in Australia found that these self-constructed networks had created what they call a “false consensus” effect around climate change, which led both sides to believe that their opinion was more common than it actually was. However, because the loud and very vocal climate change deniers were also heard far into the mainstream media, both sides tended to hugely overestimate the numbers, guessing them to make up a quarter of the population. In fact they made up less than one percent.

When people misread the social norm in this way, it can lead them to suppress their own views, thus widening the divide and further reinforcing the false consensus—and at its most extreme, creating a society in which the majority of people keep silent because they fear that they are in the minority. This process, known as *pluralistic ignorance*, helps to explain the extreme polarization around climate

markers of political identity such as abortion, gun control, and, increasingly, climate change.

Communicators have long hoped to harness the power of social norms and conformity to steer people away from high-carbon behaviors. They argue that this is particularly appropriate for collective issues, like climate change, in which people require proof that others are contributing before acting—called *conditional cooperation* in the literature. In a widely influential experiment, Robert Cialdini, professor of behavioral psychology at Arizona State University, placed hangers bearing different messages on the towel racks in motel rooms asking people to reuse their towels. By far the most successful message was the one that appealed to a social norm with the message that 75 percent of guests “help save the environment” by reusing their towels. Even then, less than half of them did so, suggesting that people require more evidence of a norm than can be provided by a single hanger tag.

In 2010, the consultancy Opower built on Cialdini’s experiment to use reported social norms to encourage energy conservation. It persuaded Connexus Energy, a Minnesota-based utility, to include with its customers’ electricity bills a report on how their energy consumption compared with that of their hundred nearest neighbors. To prevent backsliding, people who had lower than average consumption received reports covered in smiley faces and with the exhortation “Great.” After all, Opower reckoned, who would ever want to disappoint those smiley faces?

But manipulating norms in this way also has costs. The tactic (which achieved only a paltry 1 percent energy savings) made no attempt to strengthen shared values. It is not surprising that when confronted with all that green messaging and those smiley faces, some conservatives *increased* their energy consumption—apparently as an act of defiance.

It should already be clear that social norms might be powerful, but that people are correspondingly extremely alert to the cultural codes that they carry. This is why drawing too much attention to an undesirable norm can seriously backfire. When park rangers erected a sign in Arizona’s Petrified Forest National Park that read, “Your heritage is being vandalized every day by theft losses of petrified wood of 14 tons a year, mostly a small piece at a time,” the rate of theft significantly increased. Although the sign attempted to communicate the undesirability of theft, what it actually communicated far more powerfully was that stealing a small amount of wood was a perfectly normal activity.

Environmental organizations never seem to learn this message. In 2007 the Alliance for Climate Protection, founded by Al Gore, ran a commercial in which young parents at a smart dinner party list the reasons why climate change is a myth while tossing their leftovers onto the heads of their children sitting behind them. The final tagline was “What kind of mess are we leaving our children?” The ad was meant to be ironic but was actually a spectacular mistake—a thirty-second promotion for the wrong arguments that presented climate deniers as attractive young suburban professionals.

Maybe with this in mind, the Alliance’s next foray into social norm campaigning was based around common values and appeals to national unity. The three-year advertising program, supported by a staggering three-hundred-million-dollar budget, aimed to recruit ten million advocates for national climate change legislation. It was called We Can Solve It.

The campaign’s name was a combination of Barack Obama’s campaign slogan “Yes we can” and the Second World War slogan “We can do it!”—forever associated with the iconic poster of the bicep flexing Rosie the Riveter. Its advertisements drew on other familiar historical images of collective purpose, such as the Normandy landings, civil rights marches, and the Apollo landing, and showed bitter political rivals such as Nancy Pelosi and Newt Gingrich, or Al Sharpton and Pat Robertson smiling on a couch together and agreeing to cooperate.

It was a brief cease-fire before the growing partisan divide on climate change forced Gingrich and

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