

## **In the Middle of Difficulty Lies Opportunity**

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After two, perhaps three hundred thousand years of human existence, the moment had arrived. On December 7, 1972, at 18,000 miles above the Earth, the crew of Apollo 17 photographed the first fully Sun-lit portrait of our home. Suspended in the cosmos, the “Blue Marble” came to life—so serene and so perfect. And yet, for its residents, it was again, the best of times and the worst of times.

For most of those 300,000 years, our existence had tended to be very brief and very harsh. Our imaginations struggle to comprehend the daily grind for survival that preceded our relatively luxurious material lives. Hans Rosling observes, “for the first 100,000 years most children didn’t survive to become parents” (38). Our human civilization evolved slowly, but in the last five millennia the pace began to slowly accelerate forward to the eventual great paradigm shift of the Industrial Revolution. Beginning in England in the middle of the 18<sup>th</sup> century and branching out to the wider world in the mid-19<sup>th</sup> century, the Industrial Revolution swept the old world into the dust of the antiquated past. The birth of modernity was at hand. The midwife, we could say, was fossil fuels.

The harnessing of energy using fossil fuels transformed many world economies, producing the wealth that enabled the expansion of scientific and technological advancement. The United States, with its abundant natural resources, capitalist economic system, and growing energetic population, became the wealthiest and most powerful nation ever seen. The average American lives a more comfortable life than England’s Queen Victoria. By any material measure, we are living in the golden age of human existence.

Ironically, the energy source and catalyst for this historic improvement of the human condition is now, if you trust the science, potentially the primary cause for the demise of human civilization itself. This double-edged dilemma is not just a problem for science and technology. Because of the behavioral complexity of human nature, the possible mitigation and solutions to the negative effects of anthropogenic climate change is also a social, cultural, and political problem.

Probably a large majority of Americans agrees that science and technology are generally responsible for the enormous improvement of our material lives. That being so, why do so many of the beneficiaries of this material well-being reject or doubt the same transformative science that enabled this vast improvement when it warns of climate change?

“Human behavior seldom, if ever, results from the effects of one cause,” state Kenneth Keith and Bernard Beins in their book *Scientific Literacy* (56). This paper will consider several possible causes why we reject science even while we fervently embrace it.

### **Skepticism and Its Limits**

“Now and then it’s good to drive out West of Minneapolis and look around and see where you are. On the prairie, I stand by my car on a gravel road that goes West to the end of the world. It’s sheer grandeur; vast, silent like the mind of God, and I’m an insect with a vehicle” (Keillor). Garrison Keillor’s feelings of insignificance have no doubt been shared by all of us; our individual diminutive presence on this planet and our limited understanding of the world that surrounds us have made many of us skeptical that global warming is caused by human activity. Generally speaking, healthy skepticism is good. Our founding fathers, good students of history and of the dark side of human nature, created our constitution with the rule of law and a system of checks and balances. Because of our constitution, America has the invaluable capacity for

collective self-reflection, self-examination, and possible improvement in pursuit of a better democracy.

Today, America is undergoing a major self-examination and transition in a rapidly changing world. The increasing pace of societal and technological change coupled with the social dislocations of globalization have provided a perfect recipe for fear concerning the present and the future. Michael Specter, in his book *Denialism*, says, “If anything, that fear is more pronounced today (and more understandable) than ever before. Denialism is often a natural response to this loss of control, an attempt to scale the world to dimensions we can comprehend” (11). Sara and Jack Gorman, writing for *Psychology Today*, say, “climate denial is in some ways a new mental process for psychologists to understand. Of course, the concept of denial itself is well understood. Psychologists consider denial-the refusal to except facts in order to protect us from uncomfortable truths-to be a primitive defense mechanism.” We have all participated in some form of denial. Denial in many cases is accompanied by the distrust of the expert.

Recent decades have seen a growing distrust of and, in many cases, a failure to believe experts in a wide variety of professions. This distrust is not without reason. There has been no shortage of significant events where leaders and prominent experts have been mistaken or even criminal. “The Best and the Brightest” from the Kennedy and Johnson administrations gave us the tragedy of Vietnam (Halberstam). The collapse of the Soviet Union in 1989 was a surprise to an abundantly financed intelligence community. The Iraq war, based on faulty intelligence, combined with self-assured hubris, caused 190,000 deaths with untold casualties while wasting 2.2 trillion dollars.<sup>7</sup> The 2007 subprime mortgage crisis was engineered by financial experts and went undetected by expert regulators. These and other examples have contributed to an

accumulating distrust of expertise that has metastasized and seeped into multiple institutions of our government and private sector—including climate science.

Tom Nichols, the author of *The Death of Expertise*, writes, “We don’t have a healthy skepticism about experts; instead, we actively resent them with many people assuming that experts are wrong simply by virtue of being experts” (xxiii). This general distrust contextualizes the denial of climate science. Fortunately, because of the scientific method, we don’t need to know much about science and technology to understand that scientific conclusions will have a high degree of reliability. The scientific method is not infallible, nor are scientists always above scientific misconduct, but the truth is, most of the scientific and technological advancements that have occurred in the past 350 years were enabled by the process of the scientific method.

This method gave science a systemized and standardized sequence for scientific experiment. It minimizes the influence of bias on the part of the individual or group of scientists. The scientific provisional conclusions reached from the study of data are all subject to appropriate peer review and replication by other scientists in the same field of study. The incremental process of this method is accomplished under disciplined scientific skepticism. Crucially, one of the primary goals of science is not to prove theories right, but to prove them wrong, which makes it difficult for false scientific conclusions to become widely accepted theory. Evidence of the method’s success is firmly established in human history. It follows that the data presented and the conclusions reached by thousands of climate scientists and hundreds of scientific organizations throughout the world are reliable (NASA).

Despite claims to the contrary, there are no scientific controversies or conspiracies concerning global warming. Science is not about consensus, but the fact that there is overwhelming consensus amplifies the validity of climate science. The claim that climate scientists are milking

the system in order to keep grant money flowing is a classic ad-hominem argument. That thousands of climate scientists and hundreds of scientific organizations could conspire and be capable of massive misconduct on such a global scale, over decades, defies logic and common sense.

Climate change is real, and it will take international co-operation and co-ordination to address it, for climate change does not recognize countries or borders. But changing the status quo of any situation where human beings are benefitting from the entrenched arrangements is always a difficult task—especially in a democracy. This task demands that we understand the foundations on which denialism rests.

### **The Origins and Nurturing of Denialism**

So, if we understand the scientific method and agree that science and technology are largely responsible for our advanced material well-being, why does political ideology, which in many cases is manipulative and subjective, have such a lock on the human brain when it comes to climate science denial?

Part of the answer is money. A 2013 Drexel University study revealed a well-funded climate denial movement in America had existed since the early 1990s, created to circumvent regulations that could harm the funders' economic interests. Eventually this movement used "dark money" financing by using "donations funneled through third- party pass through organizations that concealed the original funder. In all, 140 foundations funneled 558 million dollars to almost 100 climate denial organizations from 2003-2010" (McKechnie). This movement succeeded in confusing the public and forestalling potential legislative efforts.

When the fossil fuel industries and others spend billions of dollars utilizing the expertise of propaganda artists, a world of smoke and mirrors obscures the conclusions of climate science and creates political gridlock in Washington D.C. concerning global warming.<sup>1</sup> A 2018 Drexel study concluded that “between 2000 and 2016, lobbyists spent more than two billion dollars on influencing relevant legislation in the US Congress. [...] the spending of environmental groups and the renewable energy sector was eclipsed by the spending of electrical utilities, fossil fuel, and transportation sectors” (*Drexel Now*).

Another and likely larger part of the answer is resistance to science. Isaac Asimov said, “The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom” (Brainy Quote). It is remarkable how many of us can casually brush aside scientific conclusions. Common attitudes on genetically modified organisms (GMO) in agriculture, homeopathy or “natural medicine,” and nuclear energy could all serve as examples.<sup>2</sup>

An April 2019 Pew Research survey states, “Partisanship is a stronger factor in people’s beliefs about climate change than is their level of knowledge and understanding about science” (“How Americans See”). While resistance to scientists’ conclusions about nuclear energy and GMOs has tended to come from the left, for example, resistance about climate change has tended to come from the right. Among Democrats and Democrat leaning independents, 84% say climate change is a major threat, while only 27% of Republicans agree (Kennedy and Jefferson). A study by Riley E. Dunlap and Aaron M. McCright says, “the voluminous research into opinions toward climate change indicates that people’s ideology, that is their deeply held views, is largely responsible for the acceptance or denial of climate science.”

Most evangelical Christians do not accept climate change science for a variety of reasons. More than a quarter of the U.S. population identifies as evangelical or born-again Christians and are much more likely to be Republican (Meineke and Welle). In addition to religion, the conservative right has been dedicated to free market solutions for social, economic and environmental problems for decades. A significant portion of the conservative argument against climate science is that potential regulation and other mitigation or solution efforts will damage economic competitiveness and allow other countries with minimal regulations to take advantage of America. Conservatives always fear the heavy hand of government, and in many cases, for good reason.

Human psychology partly accounts for the intractability of our political allegiances, which in turn weigh so heavily in our attitudes about climate change. Our responses to scientific information are profoundly affected by confirmation bias, the tendency to search for or interpret information in a way that confirms one's preconceptions (Science Daily). Scientific conclusions are nonpolitical, since the scientific method filters out most human bias in order to arrive at objectivity, but bias swims in the shallow waters of political partisanship where people tend to believe what they want to believe-while ignoring the opinion of others. This negates a neutral viewpoint. Shahram Heshmat of *Psychology Today* wrote, "when people would like a certain idea or concept to be true, they end up believing it to be true. They are motivated by wishful thinking."<sup>25</sup> All humans, to some degree, regardless of politics, engage in confirmation bias depending on the circumstances.

Finally, we also must acknowledge the role of the media. The end of the FCC's Fairness Doctrine in 1987 made 1988 a pivotal year for the merchants of outrage politics. The late Rush Limbaugh, the revolutionary conservative talk radio personality, became a national sensation as

the new voice for conservative Americans. More purveyors of infotainment politics soon followed. By 2007, there were 1,700 commercial talk radio stations—91% of them conservative—broadcasting a collective 2,520 hours per day (“Talk Radio by the Numbers”). It has been the most omnipresent, persuasive and lucrative platform for that segment of the Republican party that is most strident about climate change denial. According to writer Brian Rosenwald’s research in his book, *Talk Radio’s America*, this platform paved the way for the election of President Trump, a vocal denier of climate change science.

In October of 1996, Fox News was launched and joined the radio political infotainers with their expertise in divisive tribalism. (MSNBC, their ideological opposite, was created the same year to perform the same function for progressives. Divisiveness and tribal group think are very popular and profitable, after all.) Unsurprisingly, Fox has tended to be a cheerleader for climate change denial. “In the U.S., a coordinated climate denial movement has used Fox News to effectively spread its message discrediting science. Coverage on Fox News is overwhelmingly dismissive of climate change and disparaging toward climate science and scientists,” according to Lauren Feldman, writing for the Oxford Research Encyclopedias on Climate Science.

Some Republicans have pushed back. In his latest book, conservative Republican Nebraska Senator Ben Sasse writes that Fox News host Sean Hannity “tells a lot of angry, isolated people what they want to hear. And he has the delivery down to an art form. We’d all be better off, as would our communities, if we understood the game he and his colleagues—on both sides of the spectrum—are playing” (106).

Then there is the internet—full of disinformation, misinformation, and nitwittery promoting climate science denial 24 hours a day. The internet is an essential tool for information and communication, but like anything connected to human nature, it has its dark side.



## **A Way Forward?**

In our current political and cultural divisiveness, we should recall the timeless wisdom in George Washington's 1796 farewell address, where he argues "against the baneful effects of the spirit of party," which we could describe as divisive tribal passion. He said, "the spirit of party is democracy's worst enemy."

A 2018 Gallup analysis indicated 70% of adults aged 18 to 34 reported they worry about global warming compared to 56% of people 55 or older (Reinhart). Younger Americans are most concerned over climate change and will be affected the most by its negative consequences of climate change, but ironically, they vote the least. Senior citizens, who probably won't see the worst effects, vote the most and vote majority Republican (Misra).

A Gallup Poll of March 25, 2019 finds that 66% of Americans believe global warming is caused by human activity and for the first time since 2001, many Americans (51%) are classified as "Concerned Believers." Still, however, "Republicans remain skeptical and largely unconcerned" (Saad). History tells us that science and technology will eventually prevail—if people allow it. The good news is, we possess most of the science and technology to successfully deal with the climate dilemma. Winston Churchill famously said, "You can always count on Americans to do the right thing after they've tried everything else."

The government and private sector partnership were victorious in the existential threat of World War II. On June 4, 1944, a British Captain and meteorologist, Martin Stagg, met with Supreme Allied Commander General Eisenhower and convinced him to delay the D-Day invasion from June 5 to June 6. Despite the promised bright and clear morning skies of June 5, the

meteorological calculations indicated a series of storms would be crossing the English Channel later in the day and would endanger Operation Overlord. Eisenhower's Generals were skeptical, but Eisenhower reluctantly agreed to the delay. Years later, when Eisenhower was asked why D-Day was a success, he reportedly said, "because we had better meteorologists than the Germans." Both sides in the war understood that a D-Day failure would be cataclysmic for the Allies. Thanks in large part to a team of meteorologists, D-Day and World War II was a historic victory (Fry).

Albert Einstein said, "In the middle of difficulty lies opportunity" (Lifhack Quotes). Will the world move forward and create another great paradigm shift for the continued progression of the human race? If we remember, and act upon what history and wisdom has taught us, we will search, find again what Lincoln in his First Inaugural Address called "the better angels of our nature," and do what is right and what is necessary.

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## <sup>1</sup>Notes

And political gridlock is never very difficult to create. Essayist Joseph Epstein wrote, “Politics has never provided fruitful ground for truth; Quite the reverse. No single group is perhaps less noted for consistent truthfulness than politicians. The reason for this is that politics does not seem to allow for neutrality; in politics people are regularly asked – forced may be closer to it-to choose sides. Once they do, their version of truth takes on a coloration that is likely to preclude fairness to people with politics different from their own.”

<sup>2</sup> Eric Armstrong, writing for the New Republic said, “based on reviews of more than 900 studies, every major health organization in the world, from the World Health Organization to the National Academy of Sciences, have confidently declared GMO’s safe to eat” (Armstrong). Despite this, Pew Research reports only 37% of Americans believe that GMO’s are safe (Pew Research Center, “Public and Scientists’ Views”).

Homeopathy, an alternative “natural medicine” has been the subject of a major Australian study that concluded Homeopathy doesn’t work any better than a placebo. YouGov in a March 2015 report, states that over 25% of Americans say homeopathy is effective (Lupkin).

Nuclear energy has demonstrated over 6 decades to be relatively safe and a carbon free source of energy. Nuclear energy is much safer than coal. Conservatively, coal is responsible for over 800,000 premature deaths per year globally, including 13,000 in the U.S. (Burton).