

# “Defactionalizing” Science

**DANIEL M. ROTHSCHILD**

Mercatus Center at George Mason University



In his first inaugural address, President Barack Obama boldly promised to “restore science to its rightful place,” thus implying that science had been subordinated to factional political ends. This promise brought wide praise from the scientific community and those generally on the political left, who expressed disdain for the allegedly antiscientific actions of the previous administration.

Implicit in this phrase is that the “rightful place” for science in public life is self-evident. This is incorrect—even more so now than when those words were spoken eleven years ago. Indeed, the role of scientific expertise produces one of the sharpest cleavages in American life today.

The phrase also invokes a verbal sleight of hand: “science” is a process for identifying truth, not something that exists on its own. So talk of “science” in public discourse typically means “practitioners of science,” both individually and through the institutions that support and advance scientific research and knowledge.

In a liberal democracy, scientists provide valuable input into public policy and civic life. But experts should be “on tap, not on top” as the old saw has it, the servants of liberal democracy, not vice versa. Anti-expert sentiment has been fueled by scientists who have claimed (or have been awarded, by political actors) the mantle of philosopher kings, answering not just the empirical questions that scientists are uniquely placed to answer, but also normative questions about which science is silent.<sup>1</sup> Daniel Sarewitz refers to this as the problem of “scientizing politics,” a more useful concept than “politicizing science.”<sup>2</sup>

This is an opportunity for the philanthropic sector to advance a more nuanced discussion about how preferences, beliefs, and values—including the value of individual liberty for its own sake—interact with science in a democratic polity. This is a departure from traditional philanthropic approaches to science, which focus primarily on support of pure and applied science or as an input in solutions to various social problems.

Philanthropic support, for instance, in developing new modes and institutions to mediate scientific expertise, democratic legitimacy, and liberal values, can help rescue scientists and experts from their positions in the culture war and indeed save the experts from themselves.

## **Science in a Democratic Polity**

Scientific knowledge is indispensable to society. Specialized knowledge in medicine, engineering, economics, meteorology, supply chain management, agronomy, and hundreds of other fields is critical to virtually every aspect of our lives.

Much of this knowledge is also valuable in the formation of public policy. Yet scientific expertise

is just one of many factors that should inform decision making in a democratic polity. Civil engineering, for instance, can tell us how to build public works, but there is no scientific answer to the question of where these works should be built, how they should be paid for, or indeed whether they should be built at all.

“Restoring science to its rightful place” first requires articulating the role that scientific knowledge should play in our society, that is, defining the “rightful place.” That is the unproductive debate in which the United States is engaged at the moment.

To generalize, at the far ends of the political spectrum, one group treats scientific expertise (particularly when there’s a claimed consensus) as beyond doubt. In this view, experts are a modern clerisy whose tidings society ignores at its peril. The group on the opposite end of the spectrum is skeptical of many scientific claims and considers scientific expertise to be a tool of social control, advancing possibly sinister agendas that, at a minimum, lack democratic legitimacy. The former group is largely “of the left” and the latter group “of the right” though this oversimplifies things somewhat; scientifically dubious skepticism about vaccines and GMOs, for instance, comes largely from the political left.

None of this is new, of course; it has been more than fifty years since Richard Hofstadter argued that anti-intellectual sentiment was inherent in the American character since the nation’s founding.<sup>3</sup> Debates have long raged between experts and a skeptical public over issues ranging from water fluoridation to mathematics pedagogy. In addition, neither of the political extremes can claim anything close to a majority of Americans who, as on many complex issues, end up somewhere in the middle.

However, the threat and challenge today to scientific knowledge and its institutions, processes, and methods are quantitatively and qualitatively different from what they were a generation ago. The task before us is to develop a thoughtful middle ground that takes seriously the legitimate claims of both extremes even as actors in other institutions seek to exploit that division for cynical short-term ends.

## **Do Americans Trust Scientists?**

Americans are split on the role of scientists in civic life. Overall, 60 percent of Americans believe that “scientists should take an active role in policy debates around scientific issues.” This is pronounced among Democrats, at 73 percent; by way of contrast, a majority (56 percent) of Republicans “say scientists should focus on establishing sound scientific facts and stay out of such policy debates.”<sup>4</sup> The “rightful place” of science is thus a matter of open debate.

Trust in expertise appears to be declining. This can be seen, for instance, in declining faith in

the institutions that advance, store, and transmit knowledge, a description that chiefly applies to universities although scientific expertise resides in other institutions as well.

Universities are rapidly losing the public's trust. According to Gallup data, between 2015 and 2018, confidence in colleges and universities fell from 57 to 48 percent.<sup>5</sup> A Pew Research Center study found that a majority of Americans—including a majority in both parties—believe that higher education is heading in the wrong direction.<sup>6</sup>

The news media are traditionally a key mediating institution between scientists and the public; they provide the channel by which scientific complexities are broken down and made broadly available to the public. Again, trust in the media—low to begin with—has fallen dramatically. Taking 1995 as a baseline, confidence in newspapers has fallen from 30 to 23 percent and in television news from 33 to 18 percent.<sup>7</sup>

There are many other indicia that scientists are bound up in the culture war—the many yard signs appearing in my left-liberal community in suburban Washington, DC, after the 2016 election declaring that the residents “believe science is real” come to mind. However, it's not just a matter of the veneration or repudiation of scientists by the public, but also the actions by experts and by politicians using the mantle of science to advance their policy preferences that have diminished public trust.

## Explaining the Decline

What accounts for this decline in confidence in experts? I suggest three hypotheses.

First, expertise is limited by scientific domain, but experts routinely speak beyond their area of expertise. The most glaring example is on climate change, for which expertise about what is happening in the global climate (diagnosis) and how to effectively address these challenges (treatment) fall in separate spheres of knowledge. Too often, experts identify a problem or challenge in their domain of expertise and then move on to proffer remedies that rely on expertise they don't possess. To question the proposed remedies risks one being branded as “anti-science.”

Experts are, of course, also citizens and therefore have a right to express opinions from both perspectives. Yet how can the public differentiate between these two roles? To take two examples, Paul Krugman and Niall Ferguson are inarguably experts in international economics and the history of the British Empire, respectively. Yet both also opine in leading newspapers and on television shows about current events far beyond their expertise.<sup>8</sup> It often becomes impossible to differentiate experts' true expertise from their more general opinions, the result being a diminution of the former.

Second, expertise is sometimes leveraged as a cudgel by those seeking to advance an agenda. When this happens, expertise is not used to help make better public decisions, but rather to

justify decisions that have already been made for political reasons. This is particularly egregious when policy makers claim the mantle of science to advance a policy that has no widespread democratic mandate.<sup>9</sup>

To take a trivial example, in April 2016, the Obama administration convened a summit to highlight companies that were breaking down “gender stereotypes in toys and media.”<sup>10</sup> (The first words of the press release were “Research shows”; no citations were given.) Thus, they claimed the mantle of science for advancing a social policy preference.<sup>11</sup>

Expertise is also used as a shield by experts themselves to defend their privileged perches in society, often in a way that expresses contempt for the public. In his 2017 article “How America Lost Faith in Expertise,” Tom Nichols begins with an anecdote about a poll showing that a significant percentage of Americans favored bombing Agrabah, a fictional setting for Disney’s *Aladdin*.<sup>12</sup> In recalling this, Nichols’s words drip with disdain, arguing not simply that Americans are ignorant about foreign affairs—rationally so<sup>13</sup>—but also that “Americans have reached a point where ignorance . . . is seen as an actual virtue.”<sup>14</sup> Nichols’s superciliousness toward respondents, and to the American public more broadly, is palpable. Asking people a trick question and then mocking them for not knowing the “right” answer isn’t clever; it’s bullying.

As noted earlier, the reification of science in the phrase “let science decide” (a close cousin of the equally pernicious “history shows”) obscures the fact that science is not a thing that can speak. The phrase inevitably means “let scientists decide” or, more specifically, “let a particular scientist decide.” Invoking science this way serves to dismiss alternative arguments, including those that raise the issue of trade-offs and, moreover, attempts to impose a sterile, clinical gloss on decision making.

Finally, as Martin Gurri has argued, the “democratization of information” (including, crucially, information about experts’ personal lives) means that old modes of authority and hierarchy are being swept away.<sup>15</sup> The rationalized, bureaucratized, hierarchized, systematized post–World War II social and industrial order has been superseded by a new order not yet fully formed. The previous system placed experts at the apogee of both influence and status. Universal access to information (and disinformation) has radically reshuffled the deck. Credentialism has taken a significant if not yet fatal blow, which itself changes the very nature of expertise.

This information democratization is part of a longer erosion in traditional forms of authority as in the secularization of most Western countries or the loss of faith in public institutions coming out of the Vietnam War and Watergate. Scientists had largely avoided this defenestration perhaps in part because of seemingly miraculous advances in medicine and technology. Their previous claim to knowledge unavailable to the uninitiated has been obviated; their aura of authority has disappeared.

## **A Role for Philanthropy**

The current state of affairs in which a population distrusts science and experts disdain the general public is not sustainable. People are generally willing to tolerate losing in a democracy as long as the fight is fair. Simply finding that their preferences are not reflected in policy doesn't typically cause them to question the legitimacy of the system. But when science is invoked as a weapon or when the scientists involved show contempt for the public or change their beliefs and recommendations based on political winds or social pressures, the legitimacy of democracy is more easily called into question.

This is not irreversible. The philanthropic community can help build rapprochement between the extremes and help create new space for scientists in public life.

What follows are some suggestions for how philanthropic actors might think about addressing this question. These ideas are intended to spur conversation; they are not proffered as fully formed concepts.

### ***Building New Mediating Institutions***

Institutions such as the post-World War II news media that had previously mediated between experts, political actors, and the general public have changed beyond recognition in the last decade; there is likely no return to the status quo ante. It's therefore critical to build and support new mediating institutions to encourage nuanced public debate in which scientists play a key, but not dominant, role.

Ours is a time of great public anger, not just in the United States, but around the globe. Populism of both the right-wing and left-wing varieties agree on little other than that the existing system of authority should be rooted out and toppled. However, it is unclear what exactly is being suggested to replace it.<sup>16</sup>

It is clear, however, what the replacement *won't* look like: the hierarchical, top-down systems of old. As Arnold Kling notes, for the most part we choose what to believe by choosing whom to believe.<sup>17</sup> The *ancien régime* provided simple guidelines for trustworthy sources: in brief, the faculty of Harvard University and the journalists of the *New York Times*. The many people (a number of them credentialed, others not) who present themselves as experts today are less likely to come from elite faculties or through the traditional media.

This is an opportunity for philanthropists to support experimentation in building new mediating institutions to help the public identify whom to believe and why. There will be no one-size-fits-all solution. Rather, there will likely emerge a multiplicity of institutions taking different forms and operating at different levels.

These new institutions will develop spontaneously, so philanthropy should begin by identifying what’s working and help to nurture it. The previous order was a spontaneous one, and what replaces it must be as well if it’s to be robust.

To be successful, these institutions will have to possess two characteristics. First, they will have to create iterative processes for scientists and others in the policy debate to inform one another. Second, they will have to identify, credential, and, when necessary, rein in experts. These experiments in mediating institutions should focus not on “winning” but rather on improving the quality of debate and information at the margin.

For universities, this may be an opportunity to rebuild as institutions that advance public knowledge—a role most have essentially rejected. This will require embracing interdisciplinary work and heterodox viewpoints, both of which—the provosts’ protests notwithstanding—are the exception rather than the rule on campus. The coming enrollment crunch induced by Covid-19, declining public support (financial and attitudinal), and the weakening value of elite university marques may make this more attractive than it would have been just a few years ago.

Federally funded research and development centers could play a similar role. Congressional and executive actions in the 1980s required theretofore reticent federal scientists to prioritize technology transfer to the commercial sector and created incentives for them to do so. This proved tremendously beneficial economically.<sup>18</sup> Similarly, government labs today could work with the philanthropic sector to take scientific knowledge beyond the lab into the public square.

In either case, the desired outcome is not more scientists imperiously lecturing the public. Rather the goal would be to promote meaningful debate and discussion between scientists and others in civil society, including, but not limited to, business executives, religious leaders, community activists, elected officials, philanthropists, and artists. This will require real differences of opinion; if it descends into chin-stroking and the shared recitation of shibboleths, nothing will be gained.

The overall quality of science reporting in the popular media is generally poor. Media are quick to trumpet headline-grabbing findings, no matter how preliminary or poorly reasoned, at the expense of reporting on the slow accretion of knowledge that characterizes science. Worse still, popular science reporting often serves as input into horserace journalism or to raise or lower the status of various politicians, interest groups, or political parties.

Two different approaches to scientific reporting could benefit from philanthropic support. The first would be new media outlets that make scientific findings accessible to an educated lay public in a way that neither filters for nor comments on what the social ramifications of any particular work might be. While falling short of being truly “value-free,” deliberately eschewing political and social context might help breed trust.

A second, and seemingly diametrically opposed, approach would be for sectarian and ideological publications to do more reporting on science from an explicitly ideological point of view. The challenge here would be to explain scientific research to those of a religious or ideological bent, rather than arranging scientific facts to support an ideological position. The best current

ideological science correspondents, such as *Reason*'s Ronald Bailey, confound or at least challenge their readers' ideological priors rather than merely confirming them.

More generally, the news media could attempt to rely less on individual experts and instead seek out points of agreement and disagreement within expert communities. The Initiative on Global Markets (IGM) at the University of Chicago's Booth School of Business runs regular polls of a group of about fifty economists in which they are asked not only to agree or disagree with a statement on a five-point Likert scale, but also to rate the confidence of their answers.<sup>19</sup> Data are then presented in raw form as well as weighted by confidence.

On many topics—especially those involving current events, such as the global pandemic—IGM Economic Experts Panel respondents express a great deal of uncertainty. This is a good thing since it inures to society's detriment when experts are unable to say that they don't know. Of course, experts expressing ambiguity or nuanced positions are less likely to be quoted in newspapers, booked on cable news, go viral on Twitter, or be asked to testify before or advise governmental bodies.

### ***Knowing Both Sides***

John Stuart Mill famously wrote, “He who knows only his own side of the case knows little of that.”<sup>20</sup>

In many aspects of public life today, factions know little about those they claim to oppose. A 2019 study highlighted the “perception gap” between what Republicans and Democrats each believe and what those in the other party think they believe.<sup>21</sup> For instance, while 82 percent of Democrats agree with the statement “I am proud to be American, though I acknowledge my country's flaws,” Republicans believe only 54 percent of Democrats feel this way. Conversely, 79 percent of Republicans believe “racism still exists in America,” yet Democrats believe only 51 percent of Republicans believe this. Notably, these are relatively strident, high-valence questions; they capture little nuance in different philosophies and viewpoints.

It seems plausible a similar gap in understanding exists when it comes to tensions about scientific expertise in public life. Philanthropy could help bridge this divide by hosting a high-profile series of “Ideological Turing Tests,” in which various leaders typically seen as being on opposite sides of the expertise debate compete for significant prizes, or just prestige, by attempting to effectively argue the side they are “against.”<sup>22</sup> This could encompass leaders in the sciences, politics, the arts, and other fields.

While not a solution in itself, such a public contest would raise the profile of the problem, and prominent public figures attempting to faithfully describe rather than demonize positions they don't hold could go a long way in bridging the perception gap around expertise and its conflict with other values.

## ***Supporting Epistemic Humility***

Finally, philanthropy can help by supporting research and journalism that exhibits epistemic humility and nuance over boldness and certainty. Especially in heated and passionate debates, such as those on policy responses to the Covid-19 pandemic, there is a tendency for experts and pundits alike to set out maximalist positions that deny any possibility of disagreement. Those who dissent from the conventional wisdom, even sometimes simply in nuanced ways, are derided as anti-scientific or subjected to ad hominem attacks (including the infuriating label “denier,” which seeks to put scientific dissenters on a moral plane with those who minimize the Holocaust).

Philanthropic funders should seek to support scientific work and scientists, especially those who participate in public debates from their perch as experts, who qualify their beliefs, state their uncertainties—and even admit when they are wrong. Indeed, a fascinating question on a grant application could be, “Explain a finding or method in your field that you’ve changed your mind about.”

We also need new norms that allow for experts to change their beliefs in light of new evidence; this is, in fact, at the core of the scientific enterprise. Especially in a situation such as a pandemic, the media-driven “gotcha” narrative as science, advice, and policy evolve is destructive and even deadly. Philanthropically supporting humility both in scientific work and in public communication may help reestablish this norm.

## **Conclusion**

What is the rightful place of science in a liberal democracy? This is not a simple question to answer. Democracy is a highly imperfect means of collective decision making and fostering peaceful conflict resolution, not a means of divining truth. It is backed by the threat of coercive use of force; those who disagree with democratic decisions have little choice but to comply.

Treating scientists as the main or even sole input to democratic decision making thus puts it, or more correctly its expositors, in the position of wielding force—the opposite of reason.

Equally dangerous, however, is for democratic debate (and civic life more broadly) to ignore scientific expertise altogether. That is an essentially nihilistic position, one likely to lead to a less liberal society.

It thus falls to us—and in particular to the philanthropic sector—to lead discussions, support programs, and make investments in new mediating institutions that can help advance a role for science in public life and democratic debate. This does not mean a restoration of the status quo ante, which at this point is out of reach.

This task requires new means of sorting, credentialing, and reining in experts. It

requires acknowledging that “depoliticizing” science in public debate is an oxymoron but that “defactionalizing” science is a worthy goal. It requires epistemic humility and cultural changes that allow experts to change their minds as new evidence comes in without the public treating them as discredited.

The challenge is significant, but so is the opportunity.

**Daniel M. Rothschild** is the executive director of the Mercatus Center at George Mason University. His writing has appeared in the *Wall Street Journal*, *Reason*, *Weekly Standard*, *Roll Call*, *The Hill*, *Chicago Policy Review*, *Economic Affairs*, and many other popular and policy publications.

## Notes

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1. Ari N. Schulman catalogs and analyzes many of the ways in which scientific claims are used to advance normative positions in Ari N. Schulman, “Science Anxiety,” *Hedgehog Review* 18, no. 3 (Fall 2016), <https://hedgehogreview.com/issues/the-cultural-contradictions-of-modern-science/articles/science-anxiety>.
2. Daniel Sarewitz, “How Science Makes Environmental Controversies Worse,” *Environmental Science & Policy* 7, no. 5 (October 2004): 385–403.
3. Richard Hofstadter, *Anti-intellectualism in American Life* (New York: Alfred A. Knopf, 1963).
4. Cary Funk, Meg Hefferon, Brian Kennedy, and Courtney Johnson, “Trust and Mistrust in Americans’ Views of Scientific Experts,” Pew Research Center (August 2019), <https://www.pewresearch.org/science/2019/08/02/trust-and-mistrust-in-americans-views-of-scientific-experts/>.
5. Jeffrey M. Jones, “Confidence in Higher Education Down Since 2015,” Gallup Blog, October 9, 2018, <https://news.gallup.com/opinion/gallup/242441/confidence-higher-education-down-2015.aspx>.
6. Kim Parker, “The Growing Partisan Divide in Views of Higher Education,” Pew Research Center, August 19, 2019, <https://www.pewsocialtrends.org/essay/the-growing-partisan-divide-in-views-of-higher-education/>.
7. “Confidence in Institutions,” Gallup, <https://news.gallup.com/poll/1597/confidence-institutions.aspx>. Percentages are those who report having a “great deal” or “quite a lot” of confidence in these institutions.
8. Krugman’s byline in the *New York Times* notes that he is a Nobel laureate in economics—true, yet irrelevant to many of his political columns.
9. Another manifestation of this is utilizing professional (that is, expert) organizations to advocate for policies not directly related to the profession, for instance, various scholarly humanities organizations weighing in on the Israeli-Palestinian conflict.
10. “Fact Sheet: Breaking down Gender Stereotypes in Media and Toys So That Our Children Can Explore, Learn, and Dream without Limits,” Obama White House Archives, April 6, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/04/06/factsheet-breaking-down-gender-stereotypes-media-and-toys-so-our>.
11. This is not to pick on the Obama administration. However, the desire to appropriate “research” as a shibboleth is asymmetric between the right and the left, for both political and epistemic reasons. Simply put, Republican politicians (and voters) have little desire to advance scientific justifications for their social policies, which they typically advance on normative, values-driven grounds. A possible counterpoint is dubious scientific claims made about fetal pain in debates

about abortion though these are secondary tactics and seldom if ever at the forefront of anti-abortion arguments. A cursory search of the George W. Bush and Obama White House web archives shows the former used the phrases “research shows” or “studies show” 266 times compared with 1,273 for the latter—an admittedly informal finding, but interesting, nonetheless. A similarly informal “control”—searching for the words “football” or “baseball”—revealed a more symmetrical 2,315 results (Bush) to 1,903 hits (Obama).

12. Tom Nichols, “How America Lost Faith in Expertise,” *Foreign Affairs* 96, no. 2 (March/April 2017), <https://www.foreignaffairs.com/articles/united-states/2017-02-13/how-america-lost-faith-expertise>.
13. This is not a trivial point. Individual citizens have little incentive to inform themselves about policy details; being wrong costs essentially nothing, and having an informed opinion has a significant opportunity cost. See Bryan Caplan, *The Myth of the Rational Voter: Why Democracies Choose Bad Policies* (Princeton, NJ: Princeton University Press, 2007).
14. It’s worth noting that the firm that conducted this poll, Public Policy Polling, regularly asks prank questions. Recent examples include asking whether Ted Cruz is the Zodiac Killer (38 percent say he is or they are not sure) and polling “Giant meteor hitting the earth” against Hillary Clinton and Donald Trump in 2016 (the meteor received 13 percent support). Perhaps the real lesson here is to not take polling data too literally. Mike Pearl, “A Pollster Explains What He Learns from Asking Voters about Harambe and Deez Nuts,” *Vice*, August 31, 2016, [https://www.vice.com/en\\_us/article/4w5xyp/public-policy-polling-harambe-deez-nuts-atlantic-wall](https://www.vice.com/en_us/article/4w5xyp/public-policy-polling-harambe-deez-nuts-atlantic-wall).
15. Martin Gurri, *The Revolt of the Public and the Crisis of Authority in the New Millennium* (San Francisco: Stripe Press, 2018).
16. See Gurri, *The Revolt of the Public*.
17. Arnold Kling, “Thoughts on Social Epistemology,” askblog, February 26, 2020, <http://www.arnoldkling.com/blog/thoughts-on-social-epistemology/>.
18. Bruce L. R. Smith, *American Science Policy since World War II* (Washington: Brookings Press, 1989): 108–58.
19. “IGM Economic Experts Panel,” IGM Forum, University of Chicago Booth School of Business, <http://www.igmchicago.org/igm-economic-experts-panel/>.
20. J. S. Mill, *On Liberty* (London: Parker and Son, 1859), <https://www.gutenberg.org/files/34901/34901-h/34901-h.htm>.
21. Daniel Yudkin, Stephen Hawkins, and Tim Dixon, “The Perception Gap: How False Impressions Are Pulling Americans Apart,” More in Common and Hidden Tribes Project (June 2019), <https://perceptiongap.us/media/zaslaroc/perception-gap-report-1-0-3.pdf>.
22. The Ideological Turing Test was proposed in 2011 by economist Bryan Caplan. Bryan Caplan, “The Ideological Turing Test,” *EconLib* (June 2011), [https://www.econlib.org/archives/2011/06/the\\_ideological.html](https://www.econlib.org/archives/2011/06/the_ideological.html).