



## Politicized Science

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The Trump administration arrived in Washington in 2017 viscerally opposed by both the political and the scientific establishments. Establishment scientists pre-denounced Trump administration policies as a War on Science, in response to the many Trump campaign positions deemed hostile to the “scientific consensus.”<sup>1</sup> As Trump settled into his presidency, the most significant repudiation of the Establishment’s consensus was the withdrawal from the Paris Climate Agreement, followed soon by the administration’s reform of select Obama-era environmental regulatory initiatives.<sup>2</sup>

As with much other Trump administration policy, science initiatives have been piecemeal and limited. The Trump administration has pushed through few reformist appointments to federal scientific agencies, whose permanent bureaucracies remain Establishment bulwarks; hence the president’s vocal disbelief in the November 2018 Fourth National Climate Assessment, jointly released by the government’s environmental bureaucracies.<sup>3</sup> Lacking supporters to push through reform initiatives, the Trump administration has not been able to do much. The administration could withdraw from the Paris

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<sup>1</sup>Glenn Rainey and Jane Rainey, “Whistleblowing, the War on Science, and the Impending Trump Administration: Methods of Assault and Defense in an Accelerating Conflict,” *Proceedings of the Conference of the Southern Political Science Association*, New Orleans (January 2017); Mythili Sampathkumar, “Trump blasted for administration’s ‘abysmal’ track record on science policy,” *Independent*, August 21, 2018.

<sup>2</sup>Tom DiChristopher, “Trump administration to replace Obama’s Clean Power Plan with weaker greenhouse gas rules for power plants,” *CNBC*, August 21, 2018.

<sup>3</sup>Chris Mooney, “85 percent of the top science jobs in Trump’s government don’t even have a nominee,” *The Washington Post*, June 6, 2017.

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Climate Agreement due to its peculiar status as an executive agreement unratified by Congress—and the withdrawal has been less total than its supporters wish or its critics fear.<sup>4</sup> The mass of America’s science policy regulations have been more difficult to reform. For example, in April 2018 the Environmental Protection Agency (EPA) proposed a rule to strengthen transparency in regulatory science—but the EPA received more than 590,000 comments on the proposed rule, and had not acted on it as of December 2018.<sup>5</sup>

Effective Trump administration changes to scientific policy have largely consisted of the slowdown, delay, or suspension of further regulatory action. The exodus of permanent staff from the EPA, which has slowed down the application of existing regulations, has probably had greater practical effect than the Trump administration’s regulatory initiatives.<sup>6</sup>

Congress has not been able to substitute for executive-branch inaction. Rep. Lamar Smith’s HONEST Act would have substantially strengthened requirements for public accessibility and reproducibility of research data used for government policy—but the bill, which passed in the House, never received a hearing in the Senate. Legislation to reform science policy requires assembling a bipartisan reform coalition, a feat which does not appear imminent. The reform of science policy has been generally going in the right direction, but has also been limited in scope.

Civil society’s debate about science continues as a stalemate. The scientific “Establishment,” operating from redoubts such as the National Academy of Sciences, remains committed to dubious policy advocacy, but dissenters retain sufficient intellectual freedom that they can publicize errors and spur honest scientists to withdraw false claims. To be sure, there is far too much policy advocacy from scientists, but when they trumpet bad science the public still has opportunities to discern the truth.

Climate studies continues as the most politicized science, whose gatekeeping professionals advocate unprofessionally for climate alarmism. Far too many climate researchers take apocalyptic climate change to be an unfalsifiable paradigm.<sup>7</sup> The ‘gold standard journals’ *Nature* and *Science*, above all, promote the artificial “consensus” of high-apocalyptic climate change.<sup>8</sup> The alarmism of

<sup>4</sup>Noah Feldman, “The Paris Accord and the Reality of Presidential Power,” *Bloomberg Opinion*, June 2, 2017.

<sup>5</sup>“Strengthening Transparency in Regulatory Science,” U.S. Environmental Protection Agency.

<sup>6</sup>John Bowden, “EPA lost more than 1,500 workers in first 18 months of Trump administration: report,” *The Hill*, September 8, 2018.

<sup>7</sup>Larry Kummer, “Karl Popper explains how to open the deadlocked climate policy debate,” *Fabius Maximus*, January 28, 2016.

<sup>8</sup>Christian Harlos, Tim C. Edgell, and Johan Hollander, “No evidence of publication bias in climate change science,” *Climatic Change* 140, nos. 3–4 (2017): 375–85.

the scientific journals meets its match in the popular press, as well as at the universities, where assent to alarmist conclusions is a near-universal requirement.<sup>9</sup> The Next Generation Science Standards have injected climate alarmism into K-12 science education in almost every state.<sup>10</sup> Social media companies censor climate skepticism.<sup>11</sup> Professors publish articles calling for the formal abrogation of freedom of speech for climate skeptics.<sup>12</sup> Climate alarmists progressively undermine the climate of freedom necessary to sustain scientific inquiry.

Yet even climate studies remains open to correction. A pair of Swedish scientists published a report in *Science* in 2016 on microplastic pollution in the Baltic—and aroused suspicion from their colleagues that they had made up their research data. *Science* was slow to respond to these suspicions, but the article ultimately was withdrawn and the scientists censured by Uppsala University for scientific misconduct.<sup>13</sup> A 2018 report on increasing rates of warming in the oceans was immediately taken apart by a climate warming skeptic—and the lead scientist withdrew his headline claim.<sup>14</sup> The institutions of modern science can still correct themselves.

The juncture of climate studies and reproducibility offers particular hope. Several outsiders to the climate change consensus, alerted by the news of the larger irreproducibility crisis, have been querying the reproducibility of climate research for a decade.<sup>15</sup> More recently, climate Establishmentarians have begun to examine their own procedures. Climate projection modeling and weather computations have both been subjected to the critique that they are not as yet reproducible.<sup>16</sup> A 2017 study of publication bias in climate studies states that climate warming does exist—but that headlines routinely exaggerate its impact. The study also found that journals such as *Science* and *Nature* publish unreliable

<sup>9</sup>H. Sterling Burnett, “University of Colorado Course Bans Climate Change Skeptics,” *The Heartland Institute*, October 12, 2016.

<sup>10</sup>Katherine Bagley, “Climate Change Science Poised to Enter Nation's Classrooms,” *Inside Climate News*, March 4, 2013.

<sup>11</sup>Leo Goldstein, “Climate Skeptic Censorship by Google, Twitter, and Microsoft LinkedIn,” *Watts Up With That*, January 1, 2018.

<sup>12</sup>Trygve Lavik, “Climate change denial, freedom of speech and global justice,” *Etikk i praksis: Nordic Journal of Applied Ethics* 2 (2016): 75–90.

<sup>13</sup>Quirin Schiermeier, “Investigation finds Swedish scientists committed scientific misconduct,” *Nature*, December 7, 2017.

<sup>14</sup>Ralph Keeling, “Resplandy et al. correction and response,” *RealClimate*, November 14, 2018.

<sup>15</sup>Dominika Reckova and Zuzana Irsova, “Publication Bias in Measuring Anthropogenic Climate Change,” *Energy & Environment* 26, no. 5 (2015): 853–62.

<sup>16</sup>Claudia Tebaldi and Reto Knutti, “The use of the multi-model ensemble in probabilistic climate projections,” *Philosophical Transactions of the Royal Society* 365 (2007): 2053–75; Damien Irving, “A Minimum Standard for Publishing Computational Results in the Weather and Climate Sciences,” *Bulletin of the American Meteorological Society* (2016).

outliers to the discipline's conclusions.<sup>17</sup> Reproducibility research has quantified these flagship journals' bias—and revealed to scientific professionals how little credence should be placed in these “gold standard” publications.

The growing professional realization of the gravity of the irreproducibility crisis as a whole provides a larger hope that science can reform itself.<sup>18</sup> Since John Ioannidis first articulated the nature of the modern reproducibility crisis with his 2005 study of biomedical research,<sup>19</sup> awareness of the crisis has spread to numerous fields, with increasing numbers of scientists realizing that scientific procedures must be radically reformed.

Since politicization and groupthink are contributory factors to the irreproducibility crisis, a growing number of scientists have realized that proper scientific procedures require rejecting political groupthink. Social psychologists Jarret Crawford and Lee Jussim have co-edited a book on the effects of political groupthink on their discipline,<sup>20</sup> and the increasingly influential Heterodox Academy was founded to counter the pernicious intellectual effects of groupthink.<sup>21</sup> Tellingly, in 2018 reproducibility researcher Andrea Saltelli was brought up short by climate alarmist Naomi Oreskes's rejection of the very existence of the irreproducibility crisis.<sup>22</sup> The irreproducibility crisis has begun to make scientists realize that there are large numbers of advocates donning the cloak of science.

Science's enduring capacity for self-correction gives cause for hope. Unfortunately, that capacity, based on a continuing conception that science is devoted fundamentally to the empirical search for truth, may not survive the crippling effects of social justice education, which has begun to take root in the sciences. An increasing number of young, aspiring scientists are being indoctrinated, repelled from the discipline, or excluded from it. Worse, social justice education threatens the very definition of science as primarily a search for truth, replacing it with the necessity of pursuing social justice, variously (and sometimes whimsically) defined, and the need for political activism.<sup>23</sup> Where science education is concerned, some part of social justice concerns itself with

<sup>17</sup>Harlos, Edgell, and Hollander.

<sup>18</sup>David Randall and Christopher Welser, *The Irreproducibility Crisis of Modern Science: Causes, Consequences, and the Road to Reform* (National Association of Scholars, 2018).

<sup>19</sup>John P. A. Ioannidis, “Why Most Published Research Findings Are False,” *PLoS Med* 2, no. 8 (2005).

<sup>20</sup>Jarret T. Crawford, and Lee Jussim, eds. *The Politics of Social Psychology* (New York: Routledge, 2018).

<sup>21</sup>Heterodox Academy, <https://heterodoxacademy.org/>

<sup>22</sup>Naomi Oreskes, “Beware: Transparency rule is a Trojan Horse,” *Nature* 557, no. 7706 (2018): 469; Andrea Saltelli, “Why science's crisis should not become a political battling ground,” *Futures* 104 (2018): 85-90.

<sup>23</sup>Lori Molinari, “What Does the Left Mean by Social Justice?” *The Heritage Foundation: Issue Brief* 4667, March 17, 2017.

race and sex quotas for individuals pursuing careers as scientists—the extension of affirmative action to the STEM disciplines, with predictably deleterious consequences to science education.<sup>24</sup> As Heather Mac Donald notes:

Entry requirements for graduate education are being revised. The American Astronomical Society has recommended that Ph.D. programs in astronomy eliminate the requirement that applicants take the Graduate Record Exam (GRE) in physics, since it has a disparate impact on females and URMs [Under Represented Minorities] and allegedly does not predict future research output. Harvard and other departments have complied, even though an objective test like the GRE can spotlight talent from less prestigious schools. The NSF's Graduate Research Fellowship Program has dropped all science GREs for applicants in all fields.<sup>25</sup>

Another part of social justice education concerns itself with reserving classroom time to discuss the contributions of scientists from underrepresented groups not for the nature of their discoveries, but for the nature of the discoverers.<sup>26</sup> Yet another part seeks to yoke science education to social justice ends—to combine life science with propaganda in favor of environmental policy; to have the examples of a statistics class discuss putative police brutality; to have a chemistry class spend time doing research to support a lawsuit against a supposed polluter.<sup>27</sup>

Studying the works of minority or female scientists, even when they are marginal figures, might be just an expensive distraction, a tithe imposed on a science education whose core remains fundamentally sound. But involving science in social justice activism by steering teaching and research to support policy goals poses an existential danger to the scientific enterprise. When it takes this form, social justice education subordinates science to the cause of favored policy outcomes. It eliminates the ideal that science ought to be disinterested and independent, and substitutes the idea that science is important only to the extent that it serves social justice goals. A typical example of the theoretical claims of

<sup>24</sup>Caroline E. Parker, Sarita K. Pillai, and Jeremy Roschelle, *Next Generation STEM Learning for All: Envisioning Advances Based on NSF Supported Research*, Education Development Center, 2016; “How Equal Opportunity and Affirmative Action Support the Persistence of Women in STEM,” *All Together*, March 1, 2017, <https://alltogether.swe.org/2017/03/equal-opportunity-affirmative-action-support-persistence-women-stem-2/>

<sup>25</sup>Heather Mac Donald, “How Identity Politics Is Harming the Sciences,” *City Journal* (Spring 2018).

<sup>26</sup>Cory A. Buxton and Eugene F. Provenzo, “Diverse Learners in the Science Classroom,” in *Teaching science in elementary and middle school a cognitive and cultural approach* (SAGE, 2007), 87-119; “Inclusion of Minority and Gender Issues into Liberal Studies Courses,” October 1, 1988, Indiana University of Pennsylvania.

<sup>27</sup>See notes 28-38 below.

social justice science education argues: “Justice-centered science pedagogy . . . asserts that both the STEM pipeline and everyday life are characterized by social injustice and economic exploitation. To place justice at the center of education means that students and teachers must explicitly grapple with issues of social injustice as they learn to question and challenge oppression.”<sup>28</sup> Social justice education aims to ensure there will be no future Sakharovs, no scientists educated to know there is a distinction between scientific truth and social justice dogma.

Social justice education began to afflict the sciences by way of proposals in education journals around a decade ago. Teachers and professors began to canvass ways to subordinate science education to social justice—and to list the ways they did so in their own classes. These first proposals have spread to what now appears to be a cottage industry of journal publications, conferences, blog posts, teaching resources, and actual science classes subordinated to social justice education.<sup>29</sup> The rot appears to be deepest in K-12 science education, but it has begun to spread to the undergraduate level. Astronomy,<sup>30</sup> biology,<sup>31</sup> chemistry,<sup>32</sup> computer science,<sup>33</sup> engineering,<sup>34</sup> environmental studies,<sup>35</sup> mathematics,<sup>36</sup> physics,<sup>37</sup> and statistics<sup>38</sup> are all infected by social justice education.

<sup>28</sup>Maria Varelas, et al., “Community organizations’ programming and the development of community science teachers,” *Science Education*, November 8, 2017.

<sup>29</sup>Jazlin Ebenezer, “Social justice pedagogy for all science learners,” *Studies in Science Education* (2013); [Science keyword search] Association of American Colleges & Universities.

<sup>30</sup>Daryl Haggard, “Social Justice in the Physics and Astronomy Classroom,” *Women in Astronomy*, April 20, 2016; Morgan Walker, “Astronomy community a growing hotbed of social justice,” *Campus Reform*, August 11, 2016.

<sup>31</sup>Stem Cells and Social Justice, National Center for Science & Engagement; Amy Lindahl, “Facing Cancer: Social Justice in Biology Class,” *Rethinking Schools* 26, no. 4 (2012): 14-18.

<sup>32</sup>Grace A. Lasker, et al., “Social and Environmental Justice in the Chemistry Classroom,” *Journal of Chemical Education* 94 (2017): 983-87; Daniel Morales-Doyle, “Science Education as a Catalyst for Social Change? Justice-Centered Pedagogy in Secondary Chemistry,” Dissertation, University of Illinois at Chicago, 2015.

<sup>33</sup>Miranda C. Parker and Mark Guzdial, “Equity Versus Equality: A Proposed Study of Issues of Justice in Computer Science Education”; Eric Rice and Milind Tambe, “Forget Killer Robots, AI as a Tool for Social Justice,” *Huffington Post*, December 7, 2017.

<sup>34</sup>Ben Cohen, “The Rise of Engineering’s Social Justice Warriors,” *The James G. Martin Center for Academic Renewal*, November 21, 2018; Jon A. Leydens and Juan C. Lucena, *Engineering Justice: Transforming Engineering Education and Practice* (Wiley-IEEE Press, 2017).

<sup>35</sup>Geography 353: Geographies of Environmental Justice, Syracuse University; Teaching Intersectionality and Environmental Justice in Our Classrooms, NAACP.

<sup>36</sup>Juan M. Gerardo, “Equity and Social Justice... in Mathematics Methods Courses?” *Inside Higher Education*, April 30, 2017; National Council of Supervisors of Mathematics and TODOS: Mathematics for ALL, “Mathematics Education Through the Lens of Social Justice: Acknowledgment, Actions, and Accountability.”

<sup>37</sup>Moses Rifkin, “Teaching Social Justice in the Physics Classroom, part 1,” *Quantum Progress*, February 12, 2015; Chris Rossi, “Social Justice in STEM courses: College physics 101 course requires ‘Decolonization’ project,” *Campus Reform*, March 5, 2018.

<sup>38</sup>Will Gu, “Pomona Adds Social Justice to Stats Curriculum,” *Claremont Independent*, January 26, 2018; Christina Veiga, “How a Manhattan statistics teacher works social justice and Donald Trump into her classes,” *Chalkbeat*, November 3, 2016.

Scholarship funding has also begun to shift toward social justice. The National Science Foundation has funded the Science Scholars for Social Justice Program at Cabrini University, which “provides accepted Biology and Chemistry majors up to \$8,000/year for four years (\$32,000), in addition to other merit and need-based aid.” Recipients “[e]ngage in social justice issues and science through courses and service activities.”<sup>39</sup>

Actual science has begun to bow to social justice. President Obama declared that the National Aeronautics and Space Administration (NASA) should adopt outreach to the Muslim world as a primary mission.<sup>40</sup> Lucianne Walkowicz, the Baruch S. Blumberg Chair of Astrobiology at NASA, recently convened “Decolonizing Mars: An Unconference on Inclusion and Equity in Space Exploration” to oppose colonizing Mars because “using a colonialist framework in space reproduces past harm from humanity’s history on Earth.”<sup>41</sup>

If things go on, the quality of American scientists is likely to decrease sharply, particularly in those fields with the most immediate relevance to social justice advocacy—climate studies, social psychology, biology, and those aspects of genetics that dispute social justice advocates’ neo-Lysenkoist dogma.<sup>42</sup> The likely corollary is increased American dependence on scientists educated abroad, and, ultimately, the departure of world scientific leadership from America to countries less constrained by ideological rigidity.

Of course things rarely do go on forever. Straight-line projections of decline are simplistic. The political conjunction in 2016 that temporarily evicted from governmental power the political advocates working as scientists was unexpected, and more such surprises are possible. The stirrings of scientific reform around the reproducibility crisis offer the prospect of a substantial movement of scientific self-correction. Perhaps most important, science attracts ornery types who dislike being told what to believe. A saving remnant immune to the propaganda of social justice education may well be sufficient to redeem American science.

Yet we cannot depend on such hopes. The limited good news about reforming government policy initiatives and the hope proffered by the reproducibility crisis will matter little if social justice educators succeed in their campaign to annex

<sup>39</sup>Science Scholars for Social Justice, Cabrini University.

<sup>40</sup>Toby Harnden, “Barack Obama: NASA must try to make Muslims ‘feel good’,” *The Telegraph*, July 6, 2010.

<sup>41</sup>Decolonizing Mars: An Unconference on Inclusion and Equity in Space Exploration, June 28–29, 2018, Washington D.C., [SpacePolicyOnline.com](http://SpacePolicyOnline.com).

<sup>42</sup>“How Not To Talk About Race And Genetics,” *BuzzFeed News*, March 30, 2018; R. M. Lerner, “Promoting Social Justice by Rejecting Genetic Reductionism: A Challenge for Developmental Science,” *Human Development* 58, no. 2 (2015): 67–69.

science education. Americans who care about science must concentrate on protecting science education from their clutches.

Science is the last redoubt of the search for truth in American education. It too may fall to the *ghazis* of social justice education.