

## Hidden Injustice and Anti-Science

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### Abstract

This essay responds to the five articles on Anti-Science in this journal issue by discussing a significant theme identified across all of them: hidden injustice. Some of the ways that injustice is hidden by organizational forces related to anti-science are identified. In response, the essay points to the need for empirical data on anti-science policies, a symmetric approach to anti-science contexts, and institutional analysis of anti-science power imbalances. Additionally, a reflexive question about whether anti-science analysis in STS leads the field toward racial justice is raised. The essay calls for further organizational level research with a critical STS lens to uncover hidden injustice.

### Keywords

anti-science; hidden injustice; science and technology studies; organizations

In the fall of 2018, the President of the Eastern Sociological Society (ESS), Nazli Kibria, invited me and Joseph Harris to organize two panels for the 2019 ESS annual meetings in Boston on “Science and Technology Studies in an Era of Anti-Science.” The idea was to bring perspectives from STS to help sociologists in other subfields make sense of what was going on in the US with science and science policy after the 2016 Presidential election, including the March for Science and the Oxford dictionary’s word of the year: “post-truth.” I was personally concerned with the depopulation of the White House’s Office of Science and Technology Policy (OSTP). I had given a talk at OSTP with Sharla Alegria and Tim Sacco in the spring of 2016 on equity in science (summarized in Smith-Doerr et al. 2017). I was dismayed to see that intellectual hub of science policy research shrink from well over 100 employees in 2016 to a skeleton crew of fewer than 50 people. So I jumped at the chance to bring together some smart STS sociologists from the eastern part of the US to help us make sense of it all. My basic principle in organizing the panel for the ESS session was to take advantage of the wide range of STS perspectives to think through “science” and “anti-science” in our time. In particular, I hoped to have panelists who would bring different viewpoints including empirical, ethnomethodological, organizational, and critical perspectives on “anti-science.” I was thrilled when the prospective panelists I invited all said yes!

The back-to-back panels on March 15, 2019 ended up carrying the titles: “Presidential Panel: Science and Technology Studies in an Era of Anti-Science I: Perspectives on Science and

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Politics,” and “Presidential Panel: Science and Technology Studies in an Era of Anti-Science II: Impacts on and Reflexivity in the Field.” The panels exceeded my expectations for the range of perspectives and depth of analysis that panelists were able to offer in the usual brief 12-15 minute snapshots allowed by an academic conference structure. I am delighted that *ESTS* has provided a forum for these analyses to be published and offered to a wider audience through this thematic section of the journal. I was honored when the editors invited Joseph Harris and me, as the panel organizers, to write reflective essays discussing themes across these five STS pieces in the thematic section on anti-science.

### **Hiding Injustice**

The theme that caught my attention across all five of the articles was injustice, and the ways that injustice is hidden by organizational forces related to anti-science. I appreciated Anthony Hatch’s cogent description of the relationship between these social forces. In his article, Hatch describes racial injustice as a “one-two punch.” Punch one of racism is the violence that is done to Black people. Punch two is the denial of the violence and the gaslighting inherent in anti-black racism that blames those to whom injustice has been done. One example Hatch cites, drawing on DuBois’ (1935) brilliant analysis in *Black Reconstruction in America, 1860-1880*, is how Black people were blamed for the failure of Reconstruction after the US Civil War. As Hatch puts it: “White supremacist histories would have us believing that white people and the institutions they set up had nothing to do with the failure of the nation to heal after the Civil War.” The punch two of injustice is the one where we might find ourselves questioning whether the disinformation is really happening.

As I reflected on this second punch, the hiding of injustice, it resonated with how organizational processes operate in many ways. The same organizational processes that hide racism also hide other related injustices and anti-science moves. These organizational processes can be quite unexpected. My colleagues and I (Smith-Doerr et al. 2019) were surprised by one of the more hidden mechanisms for the gender pay gap in US federal science agencies, for example. We wanted to investigate how different organizations pay women less than men using different kinds of organizational mechanisms. What we didn’t expect to see was some agencies choosing more often to pay men than women off of the official government pay grade, and paying those off-grade men higher average salaries. We would have missed this hidden inequality mechanism if we had not obtained agency-level data for the population of US federal government workers. Our dataset does not include the present administration, however. The 2018 data presented in Frickel and Rae’s article, illustrating declines in civil service employment in the US federal government agencies related to environmental protection, made me wonder what new kinds of hidden injustices are yet to be discovered, and their connection to anti-science moves.

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### **Hiding Injustice in Plain Sight: Need for Empirical Data on Anti-science Policies**

The article co-authored by the team of ten scholars (Tirrell et al.) focuses on the removal of climate change data from the websites of multiple federal agencies, but especially the Environmental Protection Agency (EPA), since 2016. The authors refer to this removal of information from websites as “state disinformation practices,” and it seems to be happening in plain sight. Can injustice be hidden in plain sight? The authors describe how leadership in the current US Presidential administration quietly deleted information from the websites of federal agencies related to climate change, and how those moves had to be revealed by the Environmental Data and Governance Initiative (EDGI) and then reported in the press, for the erasures of environmental data to be in the public eye. Thus, the hiddenness of this bureaucratic, anti-science trend since 2016 appears clear.

Where’s the injustice in it? Tirrell et al. draw upon an argument about environmental injustice that goes beyond the local. Instead, the authors join an international conversation about how centering fossil fuel interests and climate denial within science agencies whose mission includes protection of the natural environment, leads to the erosion of equity. Tirrell et al. also make a powerful argument about how pedagogy and engaged STS can play a role in opening our eyes and revealing hidden injustices. Monitoring the web and using the effectiveness of rapid response data is EDGI’s model for climate justice—revealing the hiding of scientific evidence on climate change, and who would be most affected by it. The authors call for us to do STS: “in ways that express care for how we make and share knowledge, and that use digital systems to improve rather than impair our collective memories and advance a more just, equitable and less harmful future.”

In the article by Frickel and Rae, the authors employ an extended metaphor of disaster research to understand anti-science and unjust trends in the US. Like Tirell et al., they call for the collection of more empirical data to reveal hidden injustices folded into anti-science political moves. Frickel and Rae argue that data collection is also necessary to address the perennial STS question of: is it really new? Is the anti-science policy trend in the US since 2016 something new, or have we seen this before? Frickel and Rae usefully remind us of the contributions in an article by Kinchy and Kleinman (2005) for understanding injustices in anti-science policies; that article was built on analyses of policies enacted in the Bush administration during the early 2000s. Frickel and Rae call for baseline data, as needed in assessments of disasters in the natural world. Baseline data in the sociotechnical world can allow us to see whether there is a disaster occurring, and if so, what kind of disaster it is. Disasters like drought, Frickel and Rae inform us, creep up on you and have increasingly severe effects. Hurricanes provide a lot of warning and have wide devastation. Wildfires give little warning and have erratic devastating effects. I was taken with this disaster metaphor’s applicability to sociotechnical systems. Frickel and Rae call the current US Presidential administration an “anti-science disaster.” The authors do not explicitly name which kind of disaster it is, but I wondered if they had “wildfire” (little warning and erratic effects) in mind as they analyzed the current anti-science disaster. To many white Americans, the election in 2016 was a surprising outcome, and the unpredictability of the administration since

then in terms of rapid turnover in key appointments, unprofessional social media communications, and revelations of behavior that led to impeachment hearings, might easily be described as erratic. I'm not sure if African Americans would have the same assessment that there was little warning, however, and instead might see another instance of the hurricanes of racism. I appreciate that Frickel and Rae do go on to discuss what recognizing disaster allows us to do. The authors describe how doing science during a disaster can be doing activism, including significant work of revealing injustices with data. They provide a relevant example in some of their own work after Hurricane Katrina.

What is hidden can be revealed by data in this STS perspective. For the articles by both the Tirrell et al. team and Frickel and Rae, science can be a key part of the answer to anti-science. Rigorous and democratic approaches to data collection reveal injustices within anti-science power plays, argue these two articles. With the right kind of empirical analysis, we see injustices in the ways that the state (including science policy) is captured. Science done right can be used to provide information for better policies that serve justice. I'm a data-minded researcher myself, and quite sympathetic to this perspective.

### **Hiding Injustice by Ignoring the Context of Anti-science and the Need for Symmetry**

While Tirrell et al. and Frickel and Rae focus our attention on data collection, Lynch's article reminds us of the utility of STS theoretical concepts for understanding anti-science and injustice. Lynch makes a case for the continued usefulness of the concept of symmetry for understanding anti-science and power. Lynch notes that symmetry was intended as: "part of an effort to approach diverse forms of knowledge without initially classifying particular instances as true, false, rational, irrational, successful or mistaken and doomed to failure." The misapplication of symmetry has been at the core of the critique of STS itself as anti-science, by overgeneralizing the concept as thought to mean that "wing-nuts and gaslighters" are equivalent to "bona fide scientists," as Lynch puts it. Instead, Lynch argues, an STS approach employing symmetry means that we are actually better able to see how the institutionalization of belief claims like climate denial rely on certain power plays and narrative strategies deployed in parallel with established scientific institutions.

In addressing the hiddenness of injustice in sociotechnical politics, symmetry helps to reveal present-biased arguments by making sure that all truth claims—whether science or anti-science—are put into historical context. Symmetry is an approach that causes us to ask where claims come from, and what institutional supports they have. Whom do truth claims serve? Injustices may be hidden if history is ignored with present-focused views of science and anti-science. In addition to the need for historical context that symmetry points to, Lynch argues that symmetry helps us to avoid the crutch of left-right political poles. Instead, a symmetrical view allows us to see the anti-expertise sentiments on both sides of the political spectrum, for example in their convergence in anti-vaccine beliefs. Injustice does not boil down to villains. In an "anti-science" era, Lynch calls for attention to investigating where selective opposition to science (like climate change denial) resides.

Symmetry also reminds us of core STS epistemological commitments like reflexivity. As always, we need to be aware of where our own biases lie. Lynch raises the example of genetically modified (GM) food crops. If we are anti-GM foods but also concerned about climate change, are we considering how the use of GM crop technology for drought resistant plants might benefit people who are unjustly facing severe conditions due to climate disasters? Lynch's article reminds us that symmetry offers no easy answers, and the uncomfortableness of an STS perspective in not jumping to take sides.

### **Hiding Anti-science Injustice in Institutions and the Need for Activist STS**

The article by Kinchy continues the theme of discomfiting STS scholars, with her article most explicitly calling us to our responsibilities in using our tools for engaging with the world. Kinchy reminds us that institutions do the work of hiding unjust anti-science corporate interests. Her focus, like the three essays discussed above, is on environmental science and regulation. Climate change denial is institutionalized (and hidden) when government agencies reduce staff, regulation, and accessible information about climate change. Kinchy argues that it is our obligation as STS scholars to resist these kinds of unjust "anti-science" political moves.

I appreciated Kinchy's nuanced assessment of citizen science, and advice on working with activist organizations, based on her own experience. Rather than viewing citizen scientists as cogs in the bureaucratic machine of state science, as some grant proposals seem to do, Kinchy provides practical advice on how STS scholars can provide space for citizen scientists to advocate for the regulations and resources needed to address environmental degradation. Kinchy also encourages STS scholars to engage with, rather than standing back to critique, pro-science movements. The critical edge that STS provides, and the historical context for a current March for Science, can help a well-meaning movement go beyond a misguided "science is the solution" message. Instead, STS engagement can provide organizing tools that look to setting new priorities in scientific institutions based on righting injustices, and draw on past lessons in the long struggle to control powerful industries in the fight for the future of our planet.

### **Hiding Anti-science Injustice in STS itself and the Need for Anti-racism in Our Work**

The article by Hatch is perhaps the most reflexive among the pieces in this thematic section. Hatch takes a critical and close view of STS itself, pointing to gaps in our knowledge production that need to be addressed in order for our work to center racial justice. As I mentioned above, Hatch provides a very useful metaphor for racial injustice—the one-two punch. Unjust action is punch one. Quoting Collins (2010), the author reminds us that the injustice of our time is part of "the changing same." The danger that the current US presidential administration presents to truth, including scientific evidence of climate change, is nothing new. The hiddenness of injustice is punch two. But Hatch's discussion reminds us to ask: hidden to whom? The egregious treatment of facts by the current US president is not a surprise to Black and Brown people, Hatch writes. I was struck in reading this article, and the many examples of racial injustice to which it

refers, that history itself comes to be used as a blanket to cover injustices just as snow makes scenic even the most destroyed landscape; but the ugly strip-mined reality is still there when the whiteness of snow melts away.

Hatch's analysis calls our attention to the ways that colorblind racism makes it hard to see injustice. In the area of health and illness, colorblind racism is the myth that the reason why Black people have so many health challenges is related to individual behavior. Colorblind racism blames the individual for their health outcomes without seeing systemic inequalities that result in environmental injustices, lack of health care resources, and health science that produces knowledge based on racist tropes rather than accurate and unbiased data.

In reflecting on theoretical approaches on anti-science that STS scholars can draw upon to do anti-racist work, Hatch points to themes from the scholarship of W.E.B. DuBois and Michel Foucault. DuBois, a pioneering sociologist whose work predated the development of STS as a field by decades, wrote about the racist use of history as propaganda. In this focus on propaganda—the punch two of racism, Hatch argues, DuBois had a different take on anti-science than Foucault. Anti-science for DuBois was the misuse of knowledge, the kind of scholarship promoting misinformation that led to further oppression of Black people. For Foucault, Hatch points to his genealogy method as his anti-science approach. Foucault's brand of anti-science deconstructs truth claims and disconnects governing power and knowledge, in all its forms. Hatch argues that while DuBois sees potential for new alternative and anti-racist knowledge production, Foucault combats the institutions of science full stop. Hatch provides some interesting food for thought on how we might draw on both DuBois and Foucault to do anti-racist STS. But the author also leaves us with an ironic question for STS as a field in this current moment of anti-science. If, finally, Black and Brown people have made some inroads into higher education and the institutions of science, what does it mean now to follow Foucault's logic that all "truths" must be called into question? As Hatch puts it: "All of a sudden, truth is no longer possible, just as Black people grab the pen and mic to fight for justice and liberation."

### **A Research Agenda for Anti-science and Hidden Injustice**

What are STS scholars to make of the ironies and contradictions in conceptualizing "anti-science"? Reading these five wonderful articles together led me to ponder whether this formulation of "anti-science" lends itself to an agenda for further scholarship. There were elements of discussion across the articles that might appear contradictory. The authors who represent EDGI (Tirrell et al.) offer a view of data collection—of science—as the answer to anti-science political strategies that remove inconvenient facts from public view. Kinchy is sympathetic to the EDGI approach to activism and support for environmental science, but also reminds us that pro-science activism that looks like a March for Science promoting unthinking valorization of "objective" science misses the point and can devolve into arguing about facts with "the other side." Instead, an STS sensibility of how power, values, and history play into environmental science policy is needed. I didn't get the impression from these articles, nor from the stimulating conversations at the ESS panels, that any of the authors would disagree about the

importance of understanding power and historical context of any action that might be described as “anti-science.” Indeed, this was a strong theme—how STS helps us to see the history and power plays in knowledge production—across all of the articles. What I took away from the variety of approaches to understanding the context and power within “anti-science” moves was an appreciation of how these different STS perspectives allow us to see the range of tools we have at hand. There are a variety of methods and data, theoretical concepts, and critical and reflexive views in these articles. Some tools are handier than others for certain STS arguments at certain times.

Because I was looking for the theme of hidden injustice across these articles on anti-science, I was also thinking about where the limits of my focused reading might lie. I very much appreciated Frickel and Rae’s discussion of the current US administration’s unjust anti-science policies as “disaster.” But can there be a hidden disaster? The phrase appears to be an oxymoron, disasters would seem to be visible by definition. Yet consider the path breaking research by Diane Vaughan (1996) on how organizations hide disaster. Vaughan’s careful analysis shows how NASA bureaucratic procedures normalized deviance in the failure of the O-rings that led to the Challenger space shuttle launch disaster. I think that normalized deviance might be categorized as a hidden disaster. And in Frickel and Rae’s typology of disaster, recall that they pointed to drought as a kind of disaster that sneaks up on you until it can no longer be ignored. I agree with Frickel and Rae’s call for more STS research to help us understand the disasters that unjust anti-science policies wreak. I would like to see special attention to how these disasters are hidden in organizations, which tend to be opaque to those who are outside of organizational boundaries. Much of this kind of research on hidden injustice and hidden disaster has been done on governmental organizations—including the work I’ve referenced above by Vaughan, Frickel and Rae, and by me and my collaborators—because there are often ways that data may be obtained from the government (such as FOIA requests in the US). What would be an even larger contribution to our understanding of hidden disaster would be research within industrial organizations. Access is not an insignificant issue, and the implementation of human subjects rules in social science research meant to protect individual people may have unintended consequences of protecting private organizations from being researched. Studying hidden social processes presents a variety of challenges, but it is scholarship that STS needs to take up if we want to center social justice.

In her writing on what she calls “the New Jim Code,” Ruha Benjamin (2019a; 2019b) notes that not only is unjust social containment more hidden and encoded within sociotechnical systems now than in previous iterations of organized racism like the Jim Crow laws in the southern US states, but it is also ubiquitous. The automation of racism in predictive policing algorithms is just one area of life where artificial intelligence powered technologies may hide injustice. More analysis is needed to understand the ubiquity of hidden injustice, and where anti-science may meet up with it. The US presidential administration has recently committed attention and resources to the “American AI Initiative,” and it remains to be seen how much equity and justice will be included in the conversation. It also remains to be seen whether this is part of an anti-science trend that Frickel and Rae identify, shifting federal resources away from

environmental science toward defense related industry. I commend the authors of these five short articles for providing the seeds of important conversations; with hope these will lead to more fruitful STS research on anti-science and hidden injustice.

### Author Biography

Laurel Smith-Doerr is Professor of Sociology at University of Massachusetts, Amherst. She currently serves as Chair of the Science, Knowledge, and Technology section of the American Sociological Association. In 2020 she is a Fulbright Scholar in Hamburg, conducting research on AI knowledge production, equity, and recruitment in the tech workforce in the US and Germany.

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