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Critical Social Justice Subverts Scientific Publishing

ANNA I. KRYLOV* & JAY TANZMAN**

*University of Southern California, Los Angeles, California, USA. Email: krylov@usc.edu

**Independent, Pasadena, California, USA. Email: jay.tanzman@gmail.com

The politicization of science – the infusion of ideology into the scientific enterprise – threatens the ability of science to serve humanity. Today, the greatest such threat comes from a set of ideological viewpoints collectively referred to as Critical Social Justice (CSJ). This contribution describes how CSJ has detrimentally affected scientific publishing by means of social engineering, censorship, and the suppression of scholarship.

Introduction

The politicization of science threatens to undermine humanity's ability to see the world as it is and thus to solve our most challenging problems. It compromises our ability to grapple with technological and environmental problems such as pandemics, climate change, and energy, and social challenges such as racism, poverty, and inequality. Therefore, the politicization of science poses a fundamental threat to human welfare.

By 'politicization of science', we mean the invasion of ideology into the scientific enterprise. Today, the greatest such threat comes from a set of ideological viewpoints collectively referred to as Critical Social Justice (CSJ) (Pluckrose 2021; Pluckrose and Lindsay 2020). But the term is a disarming euphemism; there is nothing 'critical' about the movement in any positive sense, and the movement has about as much to do with social justice as Orwell's Ministry of Love had to do with love. The ideology, with philosophical roots in Marxism, postmodernism, and their offshoots (Pluckrose and Lindsay 2020), fundamentally conflicts with the liberal Enlightenment – the

Table 1. Liberal enlightenment versus CSJ epistemology (based on Figure 3 from Abbot *et al.* 2023 (CC by 4.0 license)).

Liberal epistemology	Critical Social Justice epistemology
• Provisional truth is attainable	• Replaces the concept of truth by 'multiple narratives' and 'alternative ways of knowing' • States that claims to truth are merely claims to power
• Fallibilism: anyone can always be wrong	• Does not admit corrections from outside (closed system)
• Objectivity: a rejection of any theory that cannot be proven or disproven by reality	• Denies existence of objective reality • Considers lived experience and subjectivism as the basis of knowledge
• Accountability: the openness to conceding and correcting errors	• Rejects that a theory can be proven or disproven by the empirical process
• Pluralism: the maintenance of intellectual diversity to maximize the chances of finding the truth	• Denies the legitimacy of other viewpoints

foundation of humanism, democracy, and modern science – the ideas that have made the world healthier, wealthier, better educated, and in many ways more tolerant and less violent than it has ever been (Pinker 2011, 2018).

The ideological intrusion into science (see Table 1) is affecting all areas of the scientific enterprise: education, hiring, funding, and publishing (Abbot *et al.* 2023; Krylov 2021: 5371, Krylov and Tanzman 2021). In what follows we will focus on one area: scientific publishing (Krylov *et al.* 2022a: 32; Krylov *et al.* 2022b: 12; Krylov 2022a: 223; Rauch 2022; Bikfalvi 2023). We will provide concrete examples of how CSJ is affecting publishing, focusing on chemistry (Krylov's field), and show that it is doing so by means of social engineering, censorship, and the suppression of scholarship.

The telos, or purpose, of a scientific publisher is to facilitate the communication of valid scientific research. This is accomplished through rigorous peer review and by editorial work aiming to identify and rectify possible flaws in submitted papers. This process serves as an epistemic funnel (Rauch 2021) – it accepts numerous ideas and propositions, but only those that withstand the scrutiny of the reality-based community of experts emerge out the other end. These experts assess the strengths and weaknesses of the approach, the quality of the data, the rigour of the analysis, the soundness of the conclusions, and the relationship of the findings to the existing body of knowledge. Recently, however, scientific publishers have introduced so-called Diversity, Equity, and Inclusion (DEI) considerations into the editorial process (Krylov 2022a: 223). Examples include gender/racial quotas on editors, authors, and reviewers, and 'citation justice' – the requirement that papers preferentially cite authors belonging to favoured identity groups or living in developing countries.

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Censorship, which is antithetical to the production of knowledge, is now a reality in scientific publishing (Krylov *et al*. 2022a: 32; Krylov 2022a: 223; Rauch 2022; Stevens 2020: 82). At least one chemistry publisher has issued censorship guidelines to the editorial boards of its journals to prevent the publication of 'offensive' content. The ever-expanding scope of what is considered 'offensive' ranges from fundamental biological facts, such as the sexual dimorphism of humans, to everyday English words and phrases, e.g., 'dark times', 'webmaster', 'nursing mother' and 'the poor' (ACS Guide 2023). Another publisher states that they will not publish valid scientific research if it may be 'harmful' to groups or populations (Rauch 2022; Unsigned 2022: 1029). There are even calls to cull such potentially 'harmful' research at the funding stage (Bernstein: 2021: e2117261118). What would be considered 'harmful' is left vague or unspecified, opening the door to ideologically driven censorship.

Scientific publishers are key agents in what Jonathan Rauch (2021) calls 'The Constitution of Knowledge' – the network of rules, practices, and institutions that facilitates the production of knowledge. Thus, the subversion of the mission of scientific publishing by CSJ ideology threatens the entire scientific enterprise.

Censorship in the Name of Greater Good

In the seventeenth century, a Dutch drapery, fabric, and clothing merchant by the name of Antonie van Leeuwenhoek (see Figure 1, left) had an unusual hobby: he liked to play with specially polished glass that could magnify things. By improving lens-making techniques, he created the first microscopes capable of more than 200× magnification. Leeuwenhoek was the first to observe blood cells and microorganisms (see Figure 1 right), and he is considered (together with Louis Pasteur and Robert Koch) one of the founders of microbiology (Lane 2015: 20140344).

Importantly, Leeuwenhoek did not keep his observations to himself. He carefully documented what he saw through his microscope and communicated his observations to the editor of the *Philosophical Transactions of the Royal Society*. He published nearly 200 letters describing his observations in words and drawings, such as those reproduced in Figure 2.

Leeuwenhoek was also the first to observe spermatozoa in semen (Figure 2, right), a breakthrough in understanding sexual reproduction. Yet Leeuwenhoek hesitated to communicate these findings, concerned that they might be *offensive*. In the cover letter accompanying his report to the president of the Royal Society he wrote: 'If your Lordship should consider that these observations may disgust or scandalise the learned, I earnestly beg your Lordship to regard them as private and to publish or destroy them as your Lordship sees fit.' Fortunately for science and humanity, his Lordship published Leeuwenhoek's revolutionary observations in *Philosophical Transactions* in 1678 (Leeuwenhoek 1677: 1040).

Things might have played out differently for Leeuwenhoek in 2023. According to new guidelines of the Royal Society of Chemistry (RSC), editors must now

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Figure 1. Left: Antonie van Leeuwenhoek (1632–1723), portrait by Jan Verkolje. Right: A replica of Leeuwenhoek's microscope. (Image credits: Wikimedia Commons.)

> consider whether or not any content (words, depictions or imagery) might have the potential to cause offence … [T]he aim of this guidance is to help you *to identify and prevent the publication* of inappropriate content in our journals and books, and to encourage you to reflect on how inappropriate content can impact members of the community and readers around the world.

The document says,

> Words, depictions and imagery have the potential to cause offence, therefore we need to consider how content might be perceived by others. There can be a disparity between the intention of an author and how their content might be received – *it is the perception of the recipient that determines offence, regardless of author intent*. (Krylov *et al.* 2022a: 32; emphasis added)

The guidelines provide 15 indicators of what constitutes offensive content, including content that is 'likely to be upsetting, insulting or objectionable to some or most people' – a criterion so vague and broad that it could be used to censor just about anything in chemistry and beyond.

So what could be offensive in a scientific paper? One might suppose that apart from areas of research in the life sciences that touch upon such polarizing topics as

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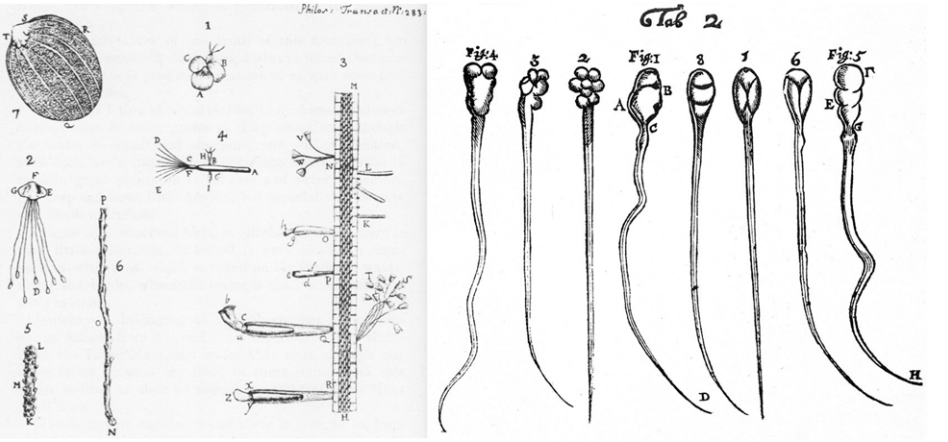

Figure 2. Left: Illustrations to Leeuwenhoek's *Letter on the Animalcules found on Duckweed* (Leeuwenhoek 1702: 1304). Right: Sperm from rabbits (1–4) and dogs (5–8), drawn by draughtsman of Antonie van Leeuwenhoek in 1677. (Image credits: Wikimedia Commons.)

evolution, differences between sexes and races, sexual reproduction, and stem cell research, the rest of STEM (science, technology, engineering, and mathematics) would be safe. After all, what could be so offensive in chemistry and physics?

According to CSJ ideologues, the very language we use to communicate our findings is a minefield of offences. Professional societies, universities, and publishing houses have produced volumes dedicated to 'inclusive' language that contain long lists of proscribed words that purportedly can cause offense and – according to the DEI bureaucracy that promulgates these initiatives – perpetuate inequality and exclusion of some groups, disadvantage women, and promote patriarchy, racism, sexism, ableism, and other *isms*. The lists of forbidden terms include 'master database', 'older software', 'motherboard', 'dummy variable', 'black and white thinking', 'strawman', 'picnic' and 'long time no see' (Krylov 2021: 5371; Krylov *et al*. 2022a: 32; McWhorter 2021; Paul 2023; Packer 2023; Anonymous 2022). The Google Inclusive Language Guide even proscribes the term 'smart phones' (Krauss 2022a). The *Inclusivity Style Guide* of the American Chemical Society (2023) – a major chemistry publisher of more than 100 titles – advises against using such terms as 'double blind studies', 'healthy weight', 'sanity check', 'black market', 'the New World', and 'dark times' (see Figure 3). Recently, the School of Social Work of the University of Southern California declared the word 'field' to be racist (Krauss 2023). 'Why,' you ask? Because slaves used to work in fields. The memo recommended replacing this newly identified racist F-word by 'practicum', so that instead of 'field of study', we are to say, 'practicum of study'. By extension, we take it that physicists should get used to Electromagnetic Practicum and Quantum Practicum Theory.

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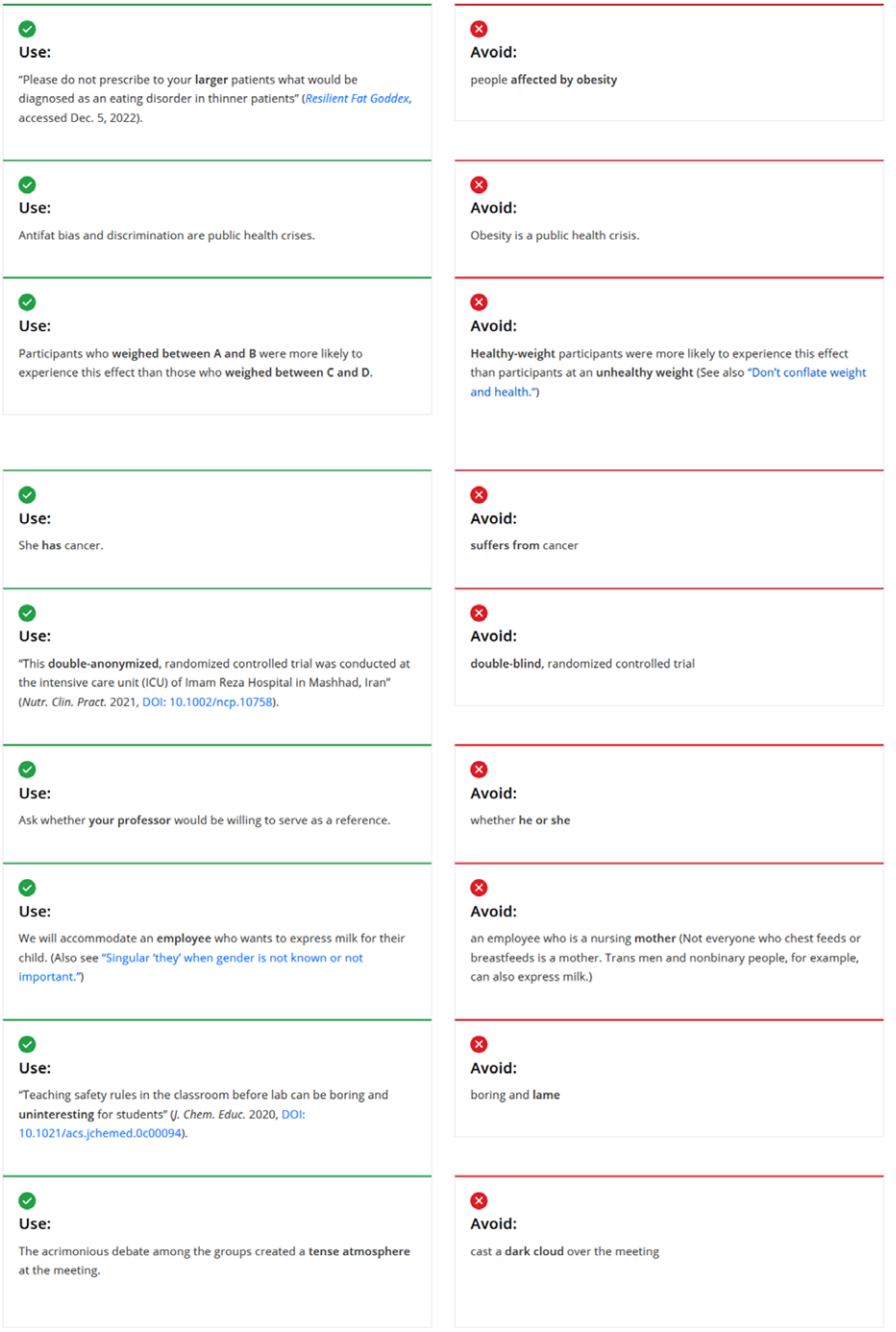

Figure 3. Recommendations from the *Inclusivity Style Guide* of the American Chemical Society (2023). The online guide is a massive document, with theoretical background, examples, and even exercises.

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Today's technology enables language policing in ways Orwell could only dream of. Software tools have been developed to ferret out offensive language and recommend Newspeak alternatives. For example, Microsoft Word offers an inclusive language plugin (Baker 2022), and Google has developed software for checking computer codes for offensive words (Krauss 2022a).

Not only can common technical terms and plain English words be offensive, but names of scientists, we are told, can too, and so they should be obliterated. A rapidly growing list of scientists who have had their names stricken from buildings, textbooks, awards, and more (Krylov 2021: 5371; Krylov and Tanzman 2021; Bodmer 2021: 565; Powell 2022; Krylov 2022b) includes such luminaries as:

- William Shockley (inventor of transistors);
- Fritz Haber (developer of nitrogen fixation process);
- Erwin Schrödinger (discovered the wave equation of quantum mechanics);
- Isaac Newton (Newton laws, calculus);
- Robert Millikan (oil drop experiment);
- Ronald Fisher (modern statistics);
- Thomas Henry Huxley (evolutionary biologist, 'Darwin's bulldog');
- Edward O. Wilson (evolutionary biologist);
- James Webb (former head of NASA).

Some of these scientists, such as Shockley, did hold racist views or, like Milliken, were affiliated with organizations that promoted eugenics. Some had a hand in wartime atrocities, such as Fritz Haber, who oversaw the development and deployment of chemical weapons in the First World War. Others, who have no record of unsavoury beliefs or behaviours, stand among the cancelled because of how their work was used by others. For example, only because his statistical methods were allegedly used to justify racism was Fisher accused of being a eugenicist (Bodmer 2021: 565). According to the award-winning physicist Prescod-Weinstein, it is sufficient to be a dead white man to get on the cancellation list (Powell 2022).

The case of James Webb illustrates that facts do not matter to the cancellation mob (Powell 2022). Webb was the head of NASA during the heroic period of the agency that culminated in sending a man to the moon. As an effective administrator and leader, Webb – according to many – deserved a fair share of the credit for the agency's success, and, accordingly, it was decided to name the Webb space telescope after him. Unfortunately, Webb led NASA during a period when the US government discriminated against gay people. Predictably, this has led to accusations that Webb, himself, was a homophobe who discriminated against gay employees of NASA. A cancellation campaign against Webb by a Twitter outrage mob and a petition demanding that NASA rename the telescope ensued. In response, NASA conducted a formal investigation. Their conclusions, contained in an 80-page document, were that there is no evidence that Webb participated in any anti-gay discrimination or held any homophobic views. But these findings have not shut down the cancellation mob, which continues the campaign.

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Figure 4. Image of a star-forming region in the Carina Nebula obtained by the James Webb Space Telescope. (Image Credit: NASA; https://www.nasa.gov/webbfirstimages.)

A disturbing aspect of this story is how scientific publishers have reacted to the cancellation campaign. Rather than following the example of NASA leadership, which evaluated the validity of the claims of the activists before making a decision, the Royal Astronomical Society responded with the following instructions to authors: The Royal Astronomical Society 'expects authors submitting scientific papers to its journals to use the JWST acronym rather than the full name of the observatory. In this case, the previous requirement for the acronym to be spelled out at first mention will not be observed' (Kahlon 2022).

It may be tempting to dismiss these and similar acts as frivolous and irrelevant to the actual practice of science. After all, quantum mechanics does not change whether we say the 'Schrödinger Equation' or the 'Great Wave Equation of the Microscopic World'; the informational content of images of stars and galaxies (see Figure 4) does not depend on the name of the space telescope.

However, the cancellation of words and names does not stop there – it extends to the suppression of ideas, viewpoints, and even research (Krylov *et al.* 2022b: 12; Stevens 2020: 82). A case well known to the chemistry community is the cancellation of Tomáš Hudlický, who wrote an essay entitled '"Organic synthesis – Where now?" is thirty years old. A reflection on the current state of affairs'. Hudlický's concerns about the integrity of the scientific literature, the decline of the work ethic, and the growth of identity-based discrimination enraged CSJ activists and, in response to the ensuing Twitter outrage, the journal (*Angewandte Chemie*) removed his *peer-reviewed, published* essay (Krylov *et al.* 2022b: 12; Deichmann 2023).

In a similar incident in 2022, the astronomer John Kormendy had written a research paper entitled 'Metrics of research impact in astronomy: Predicting later

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impact from metrics measured 10–15 years after the PhD', in which he presented statistical methodology he developed to help predict the 'future impact' of an astronomer's research in order to 'inform decisions on resource allocation such as job hires and tenure decisions' (Krauss 2022b). Kormendy was, in part, motivated by the goal of reducing bias and improving fairness in evaluating prospective hires. He submitted the manuscript to the *Proceedings of the National Academy of Sciences* (PNAS) and uploaded it to a preprint server. But the evaluation of merit, a concept the adherents of CSJ ideology find odious, generated a Twitter outrage storm. In response, Kormendy withdrew the paper from the journal, removed it from the archive, and issued the following abject apology:

> I apologize most humbly and sincerely for the stress that I have caused with the PNAS preprint, the PNAS paper, and my book on using metrics of research impact to help to inform decisions on career advancement. My goal was entirely supportive. I wanted to promote fairness and concreteness in judgments that now are based uncomfortably on personal opinion. I wanted to contribute to a climate that favors good science and good citizenship. My work was intended to be helpful, not harmful. It was intended to decrease bias and to improve fairness. It was hoped to favor inclusivity. It was especially intended to help us all to do the best science that we can. … But intentions do not, in the end, matter. What matters is what my actions achieve. And I now see that my work has hurt people. I apologize to you all for the stress and the pain that I have caused. Nothing could be further from my hopes. The PNAS paper and … preprint have been withdrawn as thoroughly as the publication system allows. The … withdrawal – if accepted by them – should be in the Wednesday posting. … I fully support all efforts to promote fairness, inclusivity, and a nurturing environment for all. Only in such an environment can people and creativity thrive. (Krauss 2022b)

These two examples are not outliers; rather, they typify the current state of science publishing. In 2022, *Nature Human Behaviour* (NHB) published an editorial stating that the journal will not publish valid research that the editors consider 'harmful' to groups (Unsigned 2022: 1029). The editorial proclaims: 'Although academic freedom is fundamental, it is not unbounded' and, 'Advancing knowledge and understanding is a fundamental public good. In some cases, however, potential harms to the populations studied may outweigh the benefit of publication.' In response, Jonathan Rauch published the following searing critique:

> Researchers should 'minimize as much as possible … risks of harm to the studied groups *in the public sphere*,' they say (my italics [i.e., Rauch's]). 'Research may – *inadvertently* – stigmatize individuals or human groups,' they add (again, my italics). 'It may be discriminatory, racist, sexist, ableist or homophobic. It may provide justification for undermining the human rights of specific groups, simply because of their social characteristics.'

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> The phrases I italicized do a lot of work. A researcher might not have a discriminatory bone in her body, and she might take exquisite care to avoid biasing her research. Her evidence may be solid, her methods sound, and her conclusions actually *true*. Nonetheless, the editors may reject her article, require revisions, or even retract and repudiate it if they believe it 'undermines the dignity or rights of specific groups; assumes that a human group is superior or inferior over [*sic*] another simply because of a social characteristic; includes hate speech or denigrating images; or promotes privileged, exclusionary perspectives.' (Rauch 2022)

Rauch goes on to explain (and illustrate with examples) that predicting future effects of research is not possible, and that enabling the authorities – whether spiritual leaders, totalitarian governments, benevolent dictators, or advocacy groups – to suppress knowledge that they would deem harmful is perilous to science and society:

> From the Church's attempt to suppress heliocentrism to modern efforts by the federal government to stymie research on gun violence and the health benefits of cannabis, authorities have consistently cited social harms as grounds to suppress research, and they have consistently been wrong. NHB's editors' crystal ball will be no clearer. In practice, they, too, will merely interpose their own guesses and prejudices between researchers and the larger community of scholars, prejudging and distorting the search for truth. The editors do suggest an answer to this problem. Here it is, in full: 'We commit to using this guidance cautiously and judiciously, consulting with ethics experts and advocacy groups where needed.' In other words, they will recruit political activists and non-specialist kibitzers as scientific advisers . . . [T]his is not reassuring . . .
>
> Good luck, NHB, with your good intentions. We have 300 years of scientific tradition that helps researchers and editors understand what constitutes scientific merit. We know that Bayesian reasoning is more reliable than cherry-picking; that double-blind controlled trials are better than convenience samples; that equating correlation with causality is an error; and much, much more.
>
> 'Preventing harm,' by contrast, is a completely and inherently subjective criterion. The new policy invites activists and interest groups to veto 'harmful' research. They will accept the invitation, claiming that whatever research offends them is oppressive, unequal, stigmatizing, traumatic, racist, colonialist, homophobic, transphobic, violent, and – you get the idea. (Rauch 2022).

Rauch notes: '*Nature Human Behaviour's* manifesto . . . represents an explicit endorsement of social-justice gatekeeping by a respected scientific journal.'

Such attempts to censor 'harmful' research go beyond the publishing stage. For example, a recent research paper in PNAS calls for the establishment of 'Ethics and Society Review Boards (ESRBs)' at universities and research institutions (Bernstein

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2021: e2117261118). At present, research proposals are evaluated by institutional review boards to ensure that human or animal study subjects are ethically treated. ESRBs are intended to extend this practice to a new domain; namely, the ESRB will evaluate whether the proposed research could harm groups or populations outside the study, very much in line with the sentiments expressed by the NHB editorial (Unsigned 2022: 1029). If such anticipated harms are found, the research would not be funded. The paper cites the following as examples of future harms:

- 'Risks that arise due to the technology being coopted for nefarious purposes – such as governments employing mass surveillance';
- 'Potential harms to any population – such as job loss due to automation'; and
- 'Potential harms to specific subgroups – such as technical barriers to using technology that is prohibitive to poorer populations'.

These risks and potential harms go beyond NHB's domain, social science, and are directly relevant to STEM. The vague and subjective notion of such 'harmful research' can be stretched to encompass all knowledge production and technological progress. Research in computational chemistry (of the type Krylov does), for example, could lead to new solar energy technology that could cause job losses in the coal industry. The algorithms for high-performance computing that computational chemists develop could be co-opted by bad agents for nefarious purposes. So by these criteria computational chemistry research can be censored out for good. ESRBs are still a proposal, but we know how quickly proposals become policies in the absence of resistance.

Critical Social Justice is Changing the Telos of the Scientific Publisher

CSJ ideology subverts scientific publishing beyond censorship and scholarship suppression by replacing the traditional purpose of a publisher with the CSJ agenda. The Royal Society of Chemistry (RSC) has issued a *Joint Commitment for Action on Inclusion and Diversity in Publishing* (RSC Joint Commitment n.d.), a declaration pledging to 'engage all relevant stakeholders to improve outcomes on inclusion and diversity, at all stages of the publishing process'. This amounts to changing the mission of the organization from the publication of valid research to the promotion of DEI. Most – if not all – scientific publishers promptly signed this commitment, without input from the scientific community – including authors, reviewers, and editors. It might again be tempting to dismiss this manifesto as vacuous and harmless. One might even think that advancing DEI could improve knowledge production, for example, by reducing biases and discrimination. To examine if this is true, let us consider the specific proposed policies and the arguments put forward to justify these new policies.

The RSC lays out its plans in a document called the *Framework for Action* (RSC Framework 2020). The *Framework* calls for concrete steps, such as implementing identity-based considerations in appointing editorial boards and having authors

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recommend reviewers from under-represented groups. It attempts to justify these policies with the claim that there is significant gender bias in chemistry publishing and that women are disadvantaged:

> Our data show differences in the likelihood of article acceptance depending on the gender of authors, reviewers and editors. Notably, women are at a disadvantage compared to men when disseminating their research. One of the opportunities for action to address this is to focus on increasing the diversity of authors, reviewers and editors.
>
> Our data show that there are subtle differences in decision-making by reviewers and editors depending on gender at each stage in the publishing process. The same is expected in relation to other demographics such as geography. Increasing inclusion and diversity in publishing requires action to mitigate both the risk and the impact of bias in decision-making. The actions in this section respond specifically to RSC evidence. (RSC Framework 2020)

The *Framework* cites the RSC's own report, entitled *Is Publishing in Chemical Sciences Gender Biased?* (RSC Report 2019), which purports to have found the following answer to the titular question:

> We found that there is a complex interaction of subtle biases occurring throughout the publishing pipeline, which combine to put women at a disadvantage when disseminating their research. (RSC Report 2019, Executive Summary)

> Overall, there appear to be small biases at every stage in the publishing pipeline which overall may be resulting in a significant cumulative effect that hinders women and favours more established, often male researchers. (RSC Report 2019, Conclusions)

This is a strong claim – that the publishing outcomes are gender-biased. It flies in the face of my (Krylov's) personal experience as an author of more than 300 papers and as an editor and reviewer of thousands more. But perhaps I am wrong and the data collected by the RSC will reveal the truth.

The only evidence for their claim, which both RSC documents (2019, 2020) cite, is the RSC-commissioned study 'Is there a gender gap in chemical sciences scholarly communications?' (Day *et al*. 2020: 2277). According to the RSC, Day *et al*. (2020) documents bias against women. But Day *et al*. does nothing of the sort.

The authors of Day *et al*. (2020) analysed numerous publishing outcomes, such as rates of manuscript acceptance, responses of reviewers, and actions of editors, with the stated goal of identifying whether and where gender imbalances exist. Although they found statistically significant gender differences for a variety of outcomes, the magnitude of the differences was small – e.g., 1–1.5 percentage points in reviewer recommendations for manuscript acceptance, revision, or rejection – and, as explained below, do not demonstrate gender bias. Figure 5, taken from the paper,

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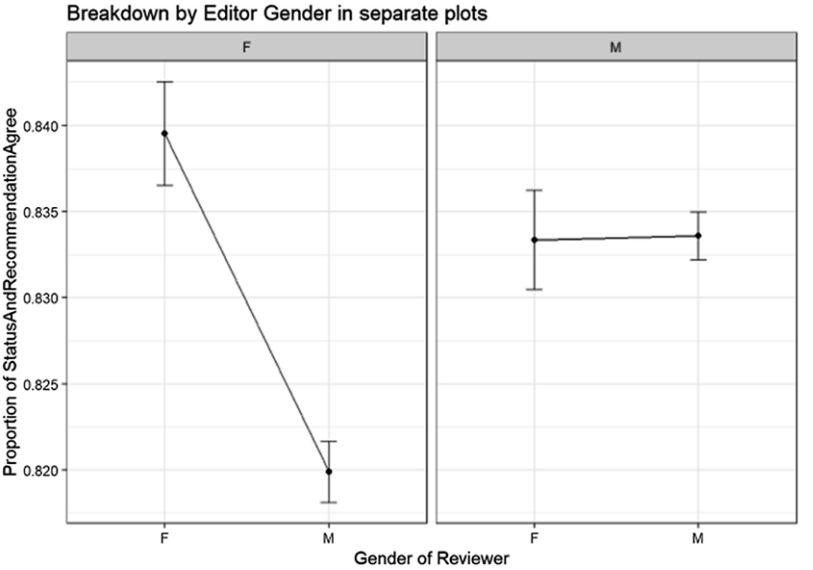

Figure 5. Illustration of how often editors agree with reviewer recommendations depending on the gender of the editor and the reviewer. The figure shows that female editors (left panel) agree with female reviewers 84 per cent of the time and with male reviewers 82 percent. Male editors (right panel) agree with reviewers 83.5 percent of the time regardless of gender. From this the authors conclude: '[T]he interaction of editor gender and review gender shows that the relationship is *significant*. Female editors agree with female reviewers *significantly more* than male reviewers' (emphasis ours). The difference is 'significant' in the statistical sense only; in terms of magnitude, the two-percentage-point difference shown in the left panel is not much larger than the zero-percentage-point difference in the right, although it looks so because the *y*–axis is clipped to the range of the data. Reprinted from Day *et al.* (2020) (license CC by 3.0).

serves as an illustrative example of their findings. Note that because the *y*–axis is clipped to the range of the data, the difference depicted in the left panel looks large, while it is actually only two percentage points (see the figure legend for details).

Fundamental to drawing causal conclusions in observational studies such as Day *et al.* (2020), is controlling for extraneous, or confounding, variables that could be the underlying causes of the observed results. That is to say, before concluding that an observed disparity between male and female scientists is due to gender bias, one must rule out other potential differences between the male and female scientists that could be responsible for the disparity. Such possible group differences might include, for example, the age, years of professional experience, academic rank, and chemistry sub-field of the scientist, or characteristics of the scientist's institution, such as its size, rank, and whether it is primarily research- or teaching-oriented. To control for such confounding effects in observational research, investigators normally collect information on potentially causative variables and include them as covariates in the statistical analysis of their data. Such statistical control is considered obligatory

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in fields such as epidemiology, which routinely rely on observational (as opposed to experimental) methods. For example, in a recent study demonstrating a possible causal link between the intake of artificial sweeteners and heart disease, the investigators adjusted for 16 demographic, medical, lifestyle, and dietary variables, in order to rule out the possibility that they were responsible for the observed relationship between intake of artificial sweeteners and heart disease in the study population (Debras *et al*. 2022: e071204).

An observational study that does not control for confounding cannot draw any conclusions about why observed differences between the groups under study exist. Although the authors of *Day et al*. (2020) tendentiously refer to the 'small but significant drops in the female percentage of authors' that they observe through the publication process as 'death by a thousand cuts', which they deem to be 'disadvantaging' women, they concede in the report that they did not have access to data that would have permitted them to control for confounding and, thus, they explicitly state that they are 'identifying gender gaps and differences, rather than gender bias'.

Yet, despite the gross methodological limitations of Day *et al*. (2020) and the authors' explicit admission that their results do not imply gender bias, the paper has been repeatedly cited as evidence of anti-female bias in chemistry and used to justify imposing gender quotas on editorial boards and reviewer pools (RSC 2020; Burrows *et al*. 2020; ACS DEIR 2023).

Returning to RSC's assertions of gender bias quoted above, we see that they are a mixture of unsupported and false claims. Although the RSC's data (Day *et al*. 2020) do show small differences in manuscript acceptance rates depending on author, reviewer and editor gender, RSC's claim that this represents a 'disadvantage' to women is unsupported due to the study's limitations, and the RSC's claim that Day *et al*. (2020) reveal gender differences *in the decision-making process* is false. Contrary to the RSC's claims, Day *et al*. (2020) do not show bias at any stage of the publication process, much less at 'every stage'. The RSC's conclusion that action is required to mitigate 'the risk and impact of bias in decision-making' is unjustified, because the data they are relying on do not indicate gender bias in the first place, as explicitly stated by Day *et al*. (2020).

In contrast to Day *et al*. (2020) and the claims of the RSC, when confounding factors are properly controlled, evidence of gender bias in STEM all but vanishes. Controlling for confounding variables, a recently completed quantitative synthesis of the literature on gender gaps in journal acceptance rates as well as five other academic science domains (recommendation letters, tenure-track hiring, grant funding, salaries, and teaching ratings) found convincing evidence of bias only in teaching ratings, and the often-cited gender pay gap of 18% (Shen 2013: 22) was reduced to 4%. In the other four domains (including manuscript acceptance rates), the authors concluded that there has been 'no systematic gender bias in the last 10–20 years.' (Ceci *et al*. 2021: 40; Ceci *et al*. 2023). Similarly, a recent encyclopaedic review of the literature on gender gaps in STEM found that 'the evidence for endemic anti-female bias is inconclusive at best,' and that, instead, 'the main cause of the gender

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gaps in STEM appears to be average sex differences in people's vocational preferences' (Stewart-Williams and Halsey 2020: 3).

Despite a complete lack of data demonstrating gender bias in chemistry publishing (and in the face, actually, of data that suggests gender fairness in scientific publishing), the RSC calls for heavy social engineering. For example, in 2020, editorial boards of RSC's journals were asked to pledge their commitment to reach a target quota of 36% of women among editors and reviewers by 2022. The proposed quotas do not reflect the demographics of the field: women constitute about 20% of chemists in tenure and tenure-track positions (Wang and Widener: 2019).

Echoing the gender bias narrative, the American Chemical Society lauds the Day *et al*. (2020) study:

> Publications and citations are academic currency, and while we like to think publishing a manuscript is 'just about the science,' we know that is not true for everyone. We have seen the biases (largely through the lens of gender and in Western countries . . .) and applaud our colleagues at the RSC for their massive study that explored these gender barriers in the publishing pipeline and their recent Inclusion and Diversity Framework. (Burrows *et al*. 2020).

The ACS *Diversity Data Report 2022* (2023) goes down the same fallacious path: first, it makes unsupported claims of biases and discrimination; then it calls for identity-based quotas on authors and editors and other DEI measures. For example:

> In 2022, each ACS journal's annual plans included 1 to 3 high-level DEIR [Diversity, Equity, Inclusion, and Respect] goals that encourage our Editors-in-Chief (EICs) to consider the equitable representation of editorial decision-makers and advisors. Of particular emphasis, journals were encouraged to identify barriers to equitable participation in scholarly publishing and implement initiatives to dismantle those barriers. These efforts include, but are not limited to:
>
> - Expanding author representation through commissioning;
> - Increasing the portion of Editors and EAB [Editorial Advisory Board] members that identify as people of color, women, and nonbinary genders;
> - Expanding the reviewer pool to increase representation;
> - Revising author guidelines and submission system (ACS Paragon Plus) templates to promote the use of inclusive and respectful language;
> - Developing inclusive programming, events, or sponsorships and promoting author advancement through recognition.

The ACS reports that in 2022, 36% of its editors, 41% of EAB members, and 55% of topic editors are women. This representation exceeds the percentage of women in the author pool (women made up 26% of corresponding authors on both submitted and published manuscripts in 2022) and in the field (around 20% in tenure and tenure-track positions, Wang and Widener: 2019), showing evidence of heavy social engineering (one could even consider these data as evidence of barriers for men). Yet,

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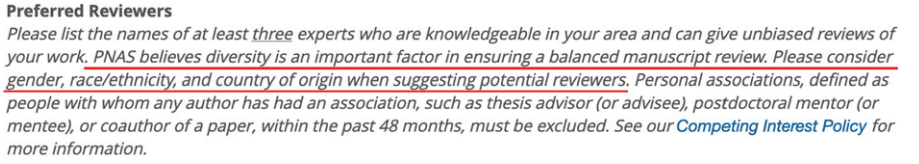
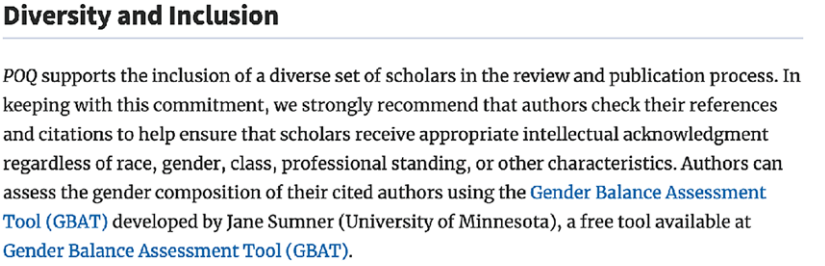

Preferred Reviewers

Please list the names of at least three experts who are knowledgeable in your area and can give unbiased reviews of your work. PNAS believes diversity is an important factor in ensuring a balanced manuscript review. Please consider gender, race/ethnicity, and country of origin when suggesting potential reviewers. Personal associations, defined as people with whom any author has had an association, such as thesis advisor (or advisee), postdoctoral mentor (or mentee), or coauthor of a paper, within the past 48 months, must be excluded. See our Competing Interest Policy for more information.

Figure 6. A screenshot from the PNAS manuscript submission system (underline added).


Diversity and Inclusion

POQ supports the inclusion of a diverse set of scholars in the review and publication process. In keeping with this commitment, we strongly recommend that authors check their references and citations to help ensure that scholars receive appropriate intellectual acknowledgment regardless of race, gender, class, professional standing, or other characteristics. Authors can assess the gender composition of their cited authors using the Gender Balance Assessment Tool (GBAT) developed by Jane Sumner (University of Minnesota), a free tool available at Gender Balance Assessment Tool (GBAT).

Figure 7. Screenshot from *Public Opinion Quarterly*. The Gender Balance Assessment Tool is described in Sumner (2018: 396).

the report continues to call for additional efforts towards the goals of promoting DEI and 'dismantling barriers to success'.

Other publishers engage in similar activities in order to promote the CSJ agenda. For example, Wiley has introduced a clause in their standard contract with editors that pledges the editor to commit to DEI (Krylov 2022a: 223). The manuscript submission system of PNAS advises authors to 'consider [the] gender, race/ethnicity, and country of origin' of potential reviewers (see Figure 6). ACS seems to be considering instituting similar practices:

> As one way to diversify and expand our reviewer pool, we are implementing a statement in select journals to encourage the suggestion of women, gender nonbinary, and young researchers as well as researchers from underrepresented racial and ethnic groups and geographic regions as potential reviewers for the manuscript. (ACS DEIR 2023)

CSJ activists are also calling for 'citation justice' (Dworkin 2020: 918), and many publishers are dutifully complying (see, for example, Figure 7). 'Citation justice' views citations as a commodity to be distributed equitably among various identity groups (Anonymous 2019), rather than the mechanism by which a publication provides background for the reported work and context for the new findings, as well as acknowledgement of previous contributions to the subject. 'Citation justice' uses citations as a social justice mechanism by increasing citations of favoured identity groups in the name of 'equity', regardless of the actual demographics of the authors in the field. Some journals suggest that authors run their manuscript through

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software (Sumner 2018: 396) that evaluates the gender balance of cited references (Figure 7).

Conclusion

We have provided concrete examples of the ongoing ideological subversion of scientific publishing, focusing largely on chemistry. CSJ ideology manifests itself in Orwellian policing of language, rewriting the history of science (cancellations and re-namings), and suppression of viewpoints and research results (paper retractions, censorship of valid research). The ideology also interferes with the publication process by replacing merit-based evaluation criteria and policies by those informed by CSJ (quotas for editors, authors, reviewers, 'citation justice', etc.).

Scientific publishing is one of the central pillars of what Jonathan Rauch calls the Constitution of Knowledge. CSJ's subversion of the mission of scientific publishing – the dissemination of valid scientific research – threatens the entire scientific enterprise.

The invasion of CSJ is not limited to scientific publishing; it pervades every domain of STEM (Abbot *et al*. 2023). It is a threat to scientific progress and, hence, to human welfare. By handicapping the ability of science to provide solutions to important problems, CSJ hurts everyone. By undermining science, CSJ stifles technological progress and, therefore, threatens the gains that humankind has made towards a more prosperous, more just, and less violent world (Pinker 2011, Pinker 2018). We conclude with a quote from Jonathan Rauch (2022): 'Above all, remember that *by far* the greatest engine of social justice, human rights, and equality has been the advancement of knowledge, and the rolling back of ignorance, by a community of truth-seekers . . . ' (emphasis in the original). The scientific community must come together and defend science from ideology.

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About the Authors

Anna Krylov is a Professor of Theoretical Chemistry at the University of Southern California, USA. She received her professional training from Moscow State University, the Hebrew University in Jerusalem, and the University of California, Berkeley. She also held visiting professorships in Germany, Spain, and the Netherlands.

Jay Tanzman is a freelance statistician working in the areas of biostatistics, epidemiology and the social sciences. Previously, he held academic positions at Loma Linda University, USA, and the University of California, Los Angeles, USA.