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Behind the Screens: Post-truth, Populism, and the Circulation of Elites

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Abstract: The alleged emergence of a ‘post-truth’ regime links the rise of new forms of social media and the reemergence of political populism. Post-truth has theoretical roots in the interdisciplinary field of *Science and Technology Studies* (STS), with sociologists of science arguing that both true and false claims should be explained by the same kinds of social causes. Most STS theorists have sought to deflect blame for post-truth, while at the same time enacting a normative turn, looking to deconstruct truth claims and subject expertise to criticism. Steve Fuller has developed a positive case for post-truth in science, arguing that post-truth democratizes science. I criticize this argument and suggest an alternative approach that draws on the prehistory of the field in the 1930s and 1940s, when philosophers and sociologists sought to define the social conditions necessary for reliable knowledge production that might stem mass media irrationalism.

Keywords: post-truth, populism, Science and Technology Studies (STS), media, socialism, neoliberalism, fascism

Reason is too weak to justify itself.

Lakatos 1976, *Proofs and Refutations*, 54–55.

I can fully subscribe to Trotsky: “A political struggle is in its essence a struggle of interests and forces, *not of arguments*”: if *astronomy* can’t get on on the basis of argument only, *how should politics be able to?* Therefore—back to Marx, I say to myself, and re-examine what can be preserved of “formal democracy,” which plays the same role in politics that argument plays in astronomy.

Paul Feyerabend to Imre Lakatos, August 1968, in Lakatos and Feyerabend 1999, *For and Against Method*, 151–152.

As we all know, both reason and weapons will eventually be resorted to.

Danielewski 2000, *House of Leaves*, 34.

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1 Introduction

Science and Technology Studies (STS), the interdisciplinary study of science and technology, anticipated current emphasis on post-truth by substituting social for epistemic causes for the production of knowledge in the 1970s. The core approach of the strong programme in the sociology of scientific knowledge (SSK) introduced the methodological requirement that both true and false knowledge should be explained by the same kinds of causes, what has been called the ‘symmetry principle,’ rejecting the philosophy of science’s distinction between rational and irrational processes.

At the same time, STS has had a tendency to chase trendy topics and approaches in an effort at relevance, something Vinsel (2021) traces to the inclusion of a percentage of The Human Genome Project’s funding for studies of its Ethical, Legal, and Social Implications (ELSI), what he calls the ELSification of inquiry. You can see something similar in the efforts to insert oneself as an obligatory point of passage in public epistemological issues, from responding to technological disasters to examining the construction of claims about DNA in the O.J. Simpson trial. Such an approach chases relevance by setting up STS practitioners as a special kind of expert on how expertise works, what Collins and Evans (2002) call referred experts. Read cynically, this can be seen as a transparent power play that seeks access to public policy and judicial decision-making venues by *changing the subject* from what the science says to what STS says about a public issue (Edmond and Mercer 2006).

Something similar has happened since 2016 in discussions of ‘post-truth,’ now poised to survive as its own subfield of STS even after the (difficult) removal of its primary proponent from the U.S. White House on January 20, 2021 (Sismondo 2017). For contemporary academics, perhaps every passing development on the news is grounds for postulating a new Foucauldian epistemic regime. The danger with this kind of marketing strategy for the field is that issues that have a long history of discussion, in this case touching upon key issues of the relationship between scientific expertise and a wider democratic polity, and the impact of mass media technologies, are set aside, and familiar theoretical approaches are repackaged for popular consumption.

In what follows below, I show how the pursuit of policy relevance has led to a number of strategies within STS to manage symmetry and to finesse the status of its practitioners as referred experts. Most seek to avoid blame for inciting post-truth in the wider polity, while still maintaining that understanding the social construction of knowledge matters for how that knowledge is supported, evaluated, and used.

By contrast, Steve Fuller, whose initial program of social epistemology had already anticipated the normative turn three and a half decades ago, has put forward a positive case for embracing a post-truth regime (Fuller 2020c). I argue against Fuller's approach, by revisiting the earlier prehistory of the field in the 1930s and 1940s, when philosophers and sociologists struggled to define the social conditions necessary for reliable knowledge production that might stem mass media irrationalism.

2 Symmetry, Power, and the Normative Turn in STS

STS has struggled with the issue of the public use of symmetrical STS at least since Scott, Richards, and Martin (1990), who worried that the losing side of scientific controversies would use symmetrical analysis to try to, in essence, re-litigate their case.¹ They argued that despite their intentions to maintain an impartial and neutral approach to explaining scientific controversies, “an epistemologically symmetrical analysis of a controversy is almost always more useful to the side with less scientific credibility or cognitive authority” (Scott, Richards, and Martin 1990, 490).

Since then, a shift in rhetoric from neutrality to accountability and relevance, a *normative turn*, has led away from concern about being *captured* by underdogs to actively capturing clients who need epistemic rehabilitation (Lynch and Cole 2005). In his positive case for embracing a post-truth regime, Fuller's pursuit of what Edmond and Mercer call ‘unsavoury causes,’ what we might now call epistemic deplorables, goes further than most. It is not different in kind from those who now want to shake up expert consensus on behalf of excluded constituencies, however (Edmond and Mercer 2006, 850; Frickel et al. 2010). Collins and Evans (2007) have tried to hold the line by preserving the function of symmetry for STS scholars in explaining closure of controversies without interfering in the controversy itself (see also Collins, Evans, and Weinel 2017).

Walking a middle line, scholars of agnotology, who study how ignorance is intentionally produced, or how doubt is manufactured by powerful actors, shift the focus to criticizing the distorting role of the exploitation of uncertainty or ignorance by the powerful, usually to avoid regulatory scrutiny (Goldberg and Vandenberg 2019; Oreskes and Conway 2010; Proctor and Schiebinger 2008).

¹ Arguably, such an approach dates to the efforts of Pierre Duhem to use history and philosophy of science to salvage his ‘energetic’ alternative to Maxwell's classical electromagnetism (Ariew and Barker 1986; Liston 2017).

A related approach analyzes external restrictions on the core set of recognized experts and the role of established institutions in facilitating a bandwagon effect (Fujimura and Holmes 2019). Here it is not underdogs who try to game the system but powerful actors, whose motivated objections to orthodox science have led them to deny that science is capable of producing knowledge that is sufficiently secure to inform public policy (Latour 2018; Mirowski and Nik-Khah 2017).

Perhaps only Steve Fuller's endorsement of post-truth has managed to square the circle, by maintaining symmetry while incorporating a normative critique of institutionalized expertise as a basic principle of epistemic justice. Post-truth is the symmetry principle reduced to a principle of politics, identifying experts as inherently authoritarian, something that can only be challenged by exploiting new social media technologies.

3 Fuller's Epistemic Populism

Fuller promotes the virtues of post-truth as a form of epistemic populism, where the 'democratization' of science is taken to require the valorization of knowledge claims of a wider public over an elite. Fuller's efforts here date to his testimony in the *Kitzmiller v. Dover* case over the teaching of intelligent design (ID) in public schools, which used the case as a springboard to 'change the ground rules of science.' This seems to have been a strategy less successful at bolstering ID than at advancing Fuller's public advocacy for STS-based criticism of science (Edmond and Mercer 2006, 847).

Fuller's approach to knowledge is consistent with political populism, which "is a type of political rhetoric that pits a virtuous 'people' against nefarious, parasitic elites who seek to undermine the rightful sovereignty of the common folk" (Oliver and Rahn 2016). Crucial to Fuller's rhetoric here is a rejection of 'deference' to intellectual and scientific elites and the characterization of core set consensus as a form of rent-seeking, reflecting an effort to establish a sort of monopolistic control over an area of inquiry rather than a 'free market' of ideas (Fuller 2016a, 6–8, 97–98, 2016b, 2016c). A rejection of deference to elites outside one's group is associated with increased deference to authority within groups, a situation exacerbated by internet echo chambers that actively work against outside information and sources of authority (Jamieson and Cappella 2010, ch. 5; Nguyen 2020).²

² Expert communities are susceptible to echo chambers as well, which is a key focus of Fuller's critique of expertise. Nguyen's (2020) argument is that echo chambers are subject to active, even malign, manipulation compared to epistemic filters that passively limit access to alternative

Fuller's conception of democratization has some of the same flaws as the political populism currently on the upswing globally. Democracy is not equivalent to populism and crucially involves deference and compromise, by most accounts, something lacking when media and political elites are characterized as engaged in conspiracies to promote fake news.³ Arguably, for any form of society to survive by a process of cultural evolution, knowledge must be transmitted by authoritative experts, whether the knife-knappers of Paleolithic foragers or contemporary transmission of disciplinary knowledge (Gil-White 2005; Henrich and Gil-White 2001; Stout 2011).

Deference to and emulation of those within one's social group who are recognized as authoritative and experienced is not the only way in which knowledge is transmitted, but it is the dominant mechanism upon which other mechanisms build (Henrich 2016). In modern societies, mechanisms for challenging and changing established knowledge claims exist, and 'vertical' transmission is supplemented by 'horizontal' transmission between different social groups.⁴ Strong group solidarity within small groups or core sets (*Gemeinschaft*) is supplemented by formal roles and norms that support scaled-up societies (*Gesellschaft*) and the strength of 'weak ties' (Granovetter 1973).⁵

Perhaps most crucially, populism does not dispense with leaders, as its rhetoric might suggest, but is a strategy used by one set of elites to dislodge or oppose another set of elites. While democratic in one sense, populism depends upon short-circuiting formal democracy, politicians, and bureaucratic elites for a

information. The equivalent of an echo chamber in science would involve an artificial restriction of the core set by active processes of exclusion and suppression, usually influenced by powerful organizations outside science. See Collins (1988) and Lynch (2021, 119–123, 228–229).

³ Among STS scholars, Turner (2003) has developed the most thorough defense of a liberal democratic approach to science and expertise, opposed to populist challenges from both the left and right (see also his commentary on Fuller 2005a, 12–19). Alternatively, populism can be construed as a *type* of democracy, albeit an authoritarian, rather than constitutional, version (Finchelstein 2019). The root origins of this kind of populism can be traced to Napoleon III's use of plebiscites to legitimize his authoritarian rule as a unitary representation of the people's will, rectifying the limitations of faction-riddled parliamentary systems.

⁴ Cultural evolution theory has strong roots in the philosophy and sociology of science. See Campbell (1965, 1983) and Hull (1988).

⁵ The *Gemeinschaft/Gesellschaft* distinction was introduced by Tönnies (1957) and provides the core foundation underwriting the discipline of sociology. For the contrast in approaches within STS, compare Shapin (1994) and Porter (1996). For the argument that the emergence of extended social networks and trade distinguished *Homo sapiens* from family-centered *Homo neanderthalensis*, who otherwise shared our ability for cultural transmission of expert technical knowledge, see Wynn and Coolidge (2012).

leader who represents the people directly. Finchelstein (2019) identifies populism as “a form of democracy that is based on the notion of leaders who, without institutional mediations and while positioning themselves away from elites, equate their voice with that of the people.” While it purports to be more democratic in bypassing entrenched, corrupt elites, “once in power populism is fascism radically reformulated and adapted to democratic times,” a view consistent with an understanding of historical fascism as a process rather than a static set of political ideals (Finchelstein 2019, 419, 420; Reichardt 2021).

Moreover, contemporary right-wing populism has been a long march through the institutions, including a strand of neoliberal thought mobilized since the New Deal to oppose the bureaucratic elites and regulatory impulses of big government and another using nationalism and xenophobia to promote the military-industrial complex and strong border controls (Miller 2015; Mirowski and Plehwe 2015; O’Connor 2021). Thus, while Latour (2018, 33–38) is correct that the post-truth phenomenon should be understood as an elite-driven phenomenon, its historical roots date to the 1930s rather than being a recent mutation brought about by climate denialism.

Fuller’s own research on Thomas Kuhn shows the relevance of this kind of elite theory of democracy for Cold War philosophy of science, the so-called ‘double truth’ view that distinguishes truths appropriate for public consumption from those confined to an esoteric elite. Thus, Fuller (2000b) developed his approach to social epistemology in a way that initially was much closer to a view of democratic social planning of science, influenced by the finalization of science school (Böhme et al. 1983).⁶ The high water mark of Fuller’s planning of science approach, not much different from the kind of approach J. D. Bernal and other British Marxist scientists advocated in the 1930s, can be seen in his critical work on Kuhn (Fuller 2000b, 2004).⁷ The focus was on opening up expertise to criticism in a manner that facilitated a role for the sociologist in intervening on behalf of a wider public. With his shift to defending epistemic deplorables, criticisms of Fuller have shifted

⁶ In his initial outline of a program in social epistemology, Fuller (1987, 145, 1988) advocated “regulating knowledge production” by altering the social organization of disciplines to desired effect. In 2005, Fuller himself noted that the finalization school’s distinction between Mode 1, discipline-driven knowledge and Mode 2, applied knowledge had shifted politically from a social democratic to a neoliberal approach, corrupting knowledge by “the assimilation of democratic processes to market processes,” leading to a situation where “free speech is confused with advertising, criticism with ‘niche differentiation’, the public interest with an array of ‘revealed preferences’, voting with trading, power with sales, rationality with efficiency, and progress with profits” (Fuller 2005c, 74).

⁷ On this issue, see the criticisms by Turner and Fuller’s response, which advocates intervention by the STS practitioner to get scientific experts to address the public good (Fuller 2005a).

from a tendency towards technocratic elitism to a tendency towards antiscientific populism.⁸

The transition between the two approaches is connected to a growing criticism of the idea that consensual knowledge can be articulated in a centralized way.⁹ This skepticism about formal knowledge is associated with neoliberalism, which at its core rejects the existence of the kind of non-disbursed knowledge that could provide a basis for economic planning, or any kind of planning for the public good. The public, in this view, transforms into an agglomeration of interest groups that are best helped by a market, which alone among information processors can turn local knowledge into accurate knowledge on which to act (Mirowski and Nik-Khah 2017; Mirowski and Plehwe 2015).¹⁰ In short, an intellectual and political movement of elite anti-planners set the stage for today's political and epistemic populism, in politics and science.

Fuller treats agnotology and the strategic use of ignorance as positive strategies that should be borrowed from the powerful and made available to the less powerful. Consequently, Fuller objects to what he perceives as the patronizing tone agnotologists take, including criticisms of the British and U.S. electorates who voted for Brexit and Trump. The key issue here is whether the behavior of voters can be seen as caused by 'ignorance,' albeit facilitated by powerful actors, a view long rejected by STS when considering the limitations of the model of 'public understanding of science.' Fuller objects to the model of educational outreach in McGoey (2019) as "patronizing, given that the people who she thinks have been duped are, for better or worse, the most information-saturated and politically empowered in history" (Fuller 2021a, 364).

8 Lynch (2006, 825) argues that Fuller's intervention in the intelligent design controversy aligns him with a politically reactionary movement, but that his criticisms of Fuller's actions are "not grounded in STS", but "derive from other life-sources." The burden of my argument is that it is a legitimate STS issue to analyze critically the (renewed) growth of suspicion of science and expertise, mediated by new communication technologies.

9 Fuller (2005b, 485) had previously argued that social epistemologists required "the standpoint of a state-like entity. In other words, they treated the pursuit of science as centrally taken decisions on how to organize a set of people and material resources in charge of producing knowledge with purchase for an entire society." Decisions should be reversible, following Popper, but he did not favor Hayek's argument for "the removal of this fallible planner in favor of the *de facto* infallibility of dispersed agents capable of reaching mutually agreeable epistemic settlements." At the same time, Fuller (2000a) was arguing, following Feyerabend, for a new Establishment Clause separating science from the state, setting the stage for his shift towards neoliberalism (Lynch 2003).

10 Foucault's view of power is structurally equivalent, such that the post-structuralist left has, in effect, a neoliberal suspicion of planning (Stein and Harper 2003).

One only needs to look at the beliefs of QAnon supporters to see that information saturation is not knowledge and political empowerment is not quite what it seems when a Republican base attached to paranoid conspiracy theories are being pandered to by politicians who maintain political power for themselves and their corporate clients. Information is being used to manipulate the public, or to allow them to manipulate themselves, because it allows entrenched elites to further support their economic and political interests.

New mass media technologies historically have provided the means for organizing popular support for authoritarian movements. For Orwell, totalitarian leaders of both the right and the left made sure that greater access to ‘information’ was accompanied by lies that scapegoated political enemies. This point is typically made by discussing *Animal Farm* or *1984*, works that have all but been appropriated by the conservative right. Orwell was a libertarian socialist, however, who fought among anarchists against the fascists in the Spanish Civil War. His objections to Soviet-style communism were that the real aspirations of the Spanish working class were betrayed by Soviet *realpolitik*, which in the event required the propagation of a kind of post-truth conspiracy theory.

When Francisco Franco sought to overthrow the new Spanish Republic in 1936 on the model of Italian and German fascism, his fascist allies sent both weapons and propaganda. In *Homage to Catalonia*, Orwell describes how the Soviet Union began to exert influence over the Popular Front as their weapons flowed to their preferred agents only. The Soviet Union and its propagandists argued that members of the Workers’ Party of Marxist Unification (P.O.U.M.) and the anarchists, who were implementing workers’ control of local governments and denied proper supply of weapons, were not just ineffective at defending the Republic from fascist takeover, but consciously looking to sabotage it.

In this case, it was newspaper writers back in London who promoted lies about the front-line soldiers, in a preview of later Soviet-style post-truth, assigning itself the role of the people’s voice even while suppressing or killing those who were actually trying to emancipate themselves:

This, then, was what they were saying about us: we were Trotskyists, Fascists, traitors, murderers, cowards, spies, and so forth. I admit it was not pleasant, especially when one thought of some of the people who were responsible for it. It is not a nice thing to see a Spanish boy of fifteen carried down the line on a stretcher, with a dazed white face looking out from among the blankets, and to think of the sleek persons in London and Paris who are writing pamphlets to prove that this boy is a Fascist in disguise. One of the most horrible features of war is that all the war-propaganda, all the screaming and lies and hatred, comes invariably from people who are not fighting. (Orwell 1980, 64–65)

Once lies like these get into circulation, the discourse shifts, with targeted scapegoats forced to defend themselves from absurd accusations and investigation of the motives of the accusers recedes. In fact, attempts to fairly assess the truth of the accusations were presumed to share in the guilt of the accused, as was the case with the truth commission led by pragmatist philosopher John Dewey (Dewey et al. 1938).

The difference in the age of online social media is that the stories circulate and are embellished by more people, and cannot pivot as easily as the say so of a Minister in Moscow. The risk is that this particular political Golem cannot be controlled by those animating it, but that doesn't mean that there will not continue to be those who try. This is evident in the aftermath of the Capitol insurrection in the U.S., when an initial Republican shift away from Trump, as members of Congress hid from the insurrectionists, failed to be sustained as the Trump base threatened to punish Republicans who did not get back on board.

4 The Prehistory of the Social Construction of Science

At the same time, it is important to note here that post-truth is not just an attack on science from the outside, but an alternative approach from within, relying on contributions from prominent scientists whose methodology can only be said to be to game the system to oppose any and all regulatory approaches based upon prevailing scientific consensus. Usually, these scientists are experts from different fields than the ones they criticize, a situation similar in that sense to STS practitioners (Oreskes and Conway 2010, 236–39; Proctor 2012).

One could speculate that the erosion of core-set autonomy and deference by neoliberal science, if not by STS, could erode the conditions conducive to the effective development of knowledge and its use for addressing public policy. Given that economists are much more likely to be appointed university presidents than STS practitioners, it could be that the erosion of the normative structure of science and the emergence of post-truth has been the result of a new neoliberal funding and regulatory regime for science, so that Fuller's approach to post-truth represents a worrisome fusion (Fuller 2016a; Lynch 2021, ch. 7; Mirowski 2011).

In the long run of history, the pathologies of neoliberal science could mean that only social systems that kept strong controls on dissent would be successful in meeting challenges like anthropogenic climate change. In that event, neoliberal science would be selected against by cultural evolution. Oreskes and Conway (2014) consider that possibility, suggesting that if democratic societies don't succeed in challenging the erosion of trust in science, China's authoritarian and

centralized model will win out (Fuller 2020c, 98–99). The situation is ironic since the original development of a neoliberal approach to science sought to protect the autonomy of scientific ‘communities’—a key word, distinguished from ‘society’—from the planning of science proposed by a circle of Marxist scientists in 1930s England.

The scientists, led by chemist J. D. Bernal, were profoundly influenced by the Soviet delegation to the 1931 International Congress of the History of Science in London in interpreting science as driven by—but also limited by—capitalist society. The remedy they sought was socialist planning of society. At this time, as the result of the Great Depression, laissez faire economics was in retreat as most who rejected the Soviet model nonetheless sought some form of capitalist planning, which led to the development of Keynesian economics that rose to dominance in the profession and in the halls of power (Beddeleem 2017).

However, a small group of Central European refugees from authoritarianism developed an alternative to planning under the label of ‘neoliberal’ economics. The two key figures in this movement, Austrian economist Friedrich Hayek and Hungarian chemist and philosopher of science Michael Polanyi, helped found the Mont Pèlerin Society in 1947, which formed the core of the movement that emerged to political success with the rise of Ronald Reagan and Margaret Thatcher in the 1980s. Polanyi’s philosophy of science introduced the idea of a self-regulating community of science that anticipated the approaches of both Thomas Kuhn and the sociology of scientific knowledge (SSK) of the 1970s.

Nye (2011) has written the definitive treatment of this political backstory to the roots of STS. She has emphasized the similarities between the ‘social’ approach of Bernal and Polanyi, obscured by their polemics against each other. However, it makes more sense to see these as competing traditions for describing what constitutes the social character of science in the first place (Turner 2012). For Bernal (1937), following Hessen (1931), societal development shapes the content of science, both facilitating insight and limiting development based upon the current stage of capitalism. The promise of socialism would be to enable capitalist science to overcome its limitations. By contrast, Polanyi argued that science was a self-selecting *community* that outsiders could not understand, rather than an epiphenomenon of a larger societal context. Kuhn, and later Harry Collins, took on board this conservative defense of expertise, while the push for an activist or normative turn in STS reflects an approach closer to Bernal.

The missing figure in this debate would be the Austrian logical positivist and socialist Otto Neurath, who participated in earlier debates about both economic planning and scientific epistemology along with Hayek and Polanyi. Hayek and

Polanyi were reacting in particular to Neurath's example in challenging Bernal's approach. Neurath had advocated both economic and scientific planning. The latter was to be carried out under an approach that encouraged the interaction between different communities within science under the banner of the 'unity of science.' He also emphasized democratic participation in economic planning, so had a less technocratic conception of socialism than Bernal, appearances to the contrary notwithstanding (Werskey 1988, ch. 3; da Cunha 2013).

5 Planning and Liberty Revisited

Polanyi was influential in developing a Society for Freedom in Science in opposition to scientific planning. Rhetoric about liberty played much the same role in science as it did in free market politics during the Cold War (Aronova 2012). Polanyi's opposition to planning, which had appealed to self-regulating scientific communities, ultimately morphed into a license for scientists opposed to regulation of industry to opt out of scientific consensus in the name of free speech and free markets, a development that would have horrified Polanyi (Oreskes and Conway 2010, 240–265; Thorpe 2009). While Fuller (2000b) has criticized Kuhn's 'Cold War' defense of the autonomy of science, his current defense of post-truth shares elements of this latter-day neoliberal science.

Fuller supports an epistemological neoliberalism, a kind of mitigated libertarianism, where individuals are free to make risky decisions based upon their own construal of knowledge unhindered by experts and unpoliced by philosophers touting theories of rational compulsion. In this sense, he identifies with the neoliberals' own self-conception as "consistent defenders of human freedom, taking the battle to the final frontier of an unwarranted restriction of access: knowledge itself" (Fuller 2020b, 117).

Fuller allows that we should listen to experts but "in the end individuals bear the consequences of their decisions on what to believe" (Rider 2019, 600). Deference to experts limits our freedom and our right to define our own values and life project. Reflecting a picture of human value as reflecting the role of choice in shaping an individual's integrated life project, the libertarian self is expanded from an economistic bundle of impulses to a life project that gives meaning to one's actions even against one's narrow self-interest, whether of wealth, safety, or simple survival.

Here Fuller favors a 'proactionary,' rather than a precautionary, perspective, supporting radical bodily experimentation as part of a larger program of transhumanism (Fuller and Lipińska 2014). The libertarianism is mitigated because there is a recognition that "decisions taken in one's own name may have serious consequences for others who had nothing to do with the decision—libertarianism's

problem of ‘collateral damage’, so to speak.” (Rider 2019, 600) So Fuller grants that citizens may be compelled to comply with mask ordinances or receive Covid vaccines because of the impact that abstention would have for others, which differs from individuals voluntarily taking on risky genetic or cyborgian modifications of their body, which is presumed *not* to have such collateral damage (Fuller 2021b).

Moreover, the restrictions on liberty arising from the pandemic only compel us because we are the type of society that treats excessive death from disease as a problem. In principle, we could choose to be a different kind of society less concerned with mass death, which would then more reasonably favor a herd immunity approach to the virus. The conception of human nature is social despite the libertarianism because an individual’s life plans are embedded in national and species-level systems of meaning, which are likewise ‘voluntarily’ chosen (compare Kuby 2020 on Feyerabend’s voluntarism). They are voluntarily chosen in the sense that we are ‘free’ to choose otherwise as a collective, and we are responsible for our actions, accepting the consequences, good or bad, with equanimity. Fuller replaces the economic self with a self-fashioned self, keeping the libertarianism, but supplementing it with sociological voluntarism.¹¹

How do we choose and take responsibility for our choices, as individuals and members of larger collectives? Fuller’s tacit assumption is that we will argue about it in attempts to justify our truth claims and our preferred policies in a free-for-all in some unspecified civic square. In a sense, the emergence of modern internet culture delivers the medium anticipated by the publication of Fuller’s third book in 1991 on the centrality of rhetoric—and not truth—to our science, politics, and our selves (Fuller 1993).

This is reflected in his calm acceptance of paranoid conspiracy theories as the price of freedom in the public square. In an interview, Fuller suggests that conspiracy theories like the reset conspiracy or QAnon provide overarching systems of meaning that also provide for social bonding in a socially atomized world, especially since the pandemic exacerbated things (Fuller 2021b). Rather than looking

¹¹ Fuller (2020a, 10) notes that balancing public health and economic impacts of the pandemic “is made much harder when people’s cultural self-understanding includes a strong sense of civil liberties.” He concludes that even if Hillary Clinton had won the 2016 election, she would have been unable to enforce a stronger lockdown on Republican governors, and death counts from the pandemic might have been similar to those under Trump. It is in this sense that the U.S. has adopted a different cost-benefit calculation than other nations because of the kind of collective identity it has ‘chosen.’ Of course, Americans as a whole did no such thing and it is paradoxical, to say the least, to say that Americans dying from decisions made by a political elite chose the policies that doomed them.

to address the root causes of contemporary anomie, or find alternative systems of meaning, Fuller urges us into the fray. Here an emphasis on endlessly fluid, in-the-moment interventions and reframings are urged, but definitely not withdrawal or condescension. The worried leftist is urged to go on Fox news, just duly prepared for rhetorical battle, and to study and repurpose the techniques that have given rise to the alt-right in the first place.

In this sense, Fuller's evanescent conception of politics is complicit with neoliberalism's erasure of the political context of its own emergence. An individual's politics become a matter of preferences, like any market logic, a view Fuller extends explicitly to epistemology. And yet the basic contradictions of capitalism remain—widening social inequality, more (individual and collective) economic insecurity, increased prison populations and state repression, environmental pollution, and depletion of resources (Bichler and Nitzan 2013; Piketty 2020). While capitalism no longer concentrates workers in large-scale factories and extractive mining, the dispossession of service workers, the loss of pensions, decline in home ownership, and erosion of economic security have meant that younger workers are more supportive of socialist policies, with or without the label (Schaffner and Fleming-Wood 2020; Wronski 2021).

Consequently, the best way to understand the contrast between Fullerian post-truth and Neurathian unity of science is in distinguishing different regimes of expert, corporate, and governmental planning, not in a contrast between populism and scientism. Indeed, the allegedly populist character of neoliberal and post-truth approaches disguises a bid for greater power by a smaller elite who feels hampered by the deference given to disciplinary elites who interfere with their interests. However, the need for expert planning and coordination to deal with economic and viral crisis had brought back elements of socialist planning in the response of governments, albeit to a much smaller extent in the United States (Lynch 2020).

Neoliberalism has sought to push back against government infrastructure spending and income supports by the usual arguments, but dissenting economists behind Modern Monetary Theory (MMT) are finding new bases to challenge their analysis and promote a version of democratic planning, whereby popular demands for a green new deal or job guarantees do not have to be rejected due to economic necessity (Connors and Mitchell 2017). Consequently, support for breathing space for dissenting experts to maneuver is more likely to overcome "unwarranted restriction of access [to] knowledge itself" than neoliberal post-truth (Fuller 2020b, 117). After all, it is neoliberalism that has limited political imagination and practice by suggesting that there is no alternative (TINA), in contrast to activists who argue that another world is possible.

6 Freedom and Unity in Science: Neurath and Feyerabend

“In the post-truth condition,” for Fuller, “what matters is not whether something is true or false but how the matter is decided” (Fuller 2020c, 1). This sounds similar to Neurath’s definition of truth as a form of coherence among statements rather than correspondence to an underlying reality, but there is a difference. Recent revisionist approaches to Neurath argue that he carried out both the linguistic turn and the practice turn in philosophy and sociology of science, rooted in an expanded conception of Pierre Duhem’s thesis that scientific conclusions are underdetermined by observation.

The thesis was expanded to reject pure observational foundations in the first place and to include a conception of congestion (*Ballungen*) in scientific language use. This ‘congestion’ refers to unarticulated complexity and uncertainty in any foundational observation language for a given scientific field. His linguistic turn, unlike others in the Vienna Circle, required that scientific theories be compared to observation sentences, conventionally arrived at in different ways in different fields, not to facts or nature itself, which are unknowable and metaphysical (Cartwright et al. 1996; Uebel 1992). Neurath argued that “statements are always compared with statements, certainly not with some ‘reality’, nor with ‘things’.”

The unity of science emerged out of a holistic perspective rather than a reductionist and foundationalist approach:

If a statement is made, it is to be confronted with the totality of existing statements. If it agrees with them, it is joined to them; if it does not agree, it is called ‘untrue’ and rejected; or the existing complex of statements of science is modified so that the new statement can be incorporated; the latter decision is mostly taken with hesitation. *There can be no other concept of ‘truth’ for science.* (Neurath 1983, 53, emphasis in original; see Reisch 1994, 165)

Since how statements are determined depends upon distinct disciplinary ways of producing candidate observational facts, their coordination with other statements from different fields is a difficult and ongoing process.

This meant, as a corollary, that the facts as given by a scientific theory are shaped by the social and historical contexts that give rise to them, such that Neurath’s conventionalism combined with a genuine sociology of scientific knowledge (Seidel 2016; Uebel 2000, 2015). In a sense, Neurath took on board a non-dogmatic understanding of historical materialism equivalent to its articulation in Marx and Engels’ *German Ideology*, applied to science, where socio-material practices shape what is known. Consequently, his approach would be

able to fluently handle contributions from contemporary lab-based and actor-network approaches within STS (Lynch 2021).¹²

His concern with the ‘unity of science’ consequently sought interdisciplinary integration, a forging of common languages, something like Galison’s ‘trading zones,’ to work on problems of public interest (Galison 1997).¹³ The significance of ‘physicalism’ as a common language for science was not to reduce all science to the language of physics, or to enforce a premature unity of approach, but to coordinate expert disagreement and contradictory ontologies and methodologies by appeal to the languages of everyday objects observed in common. The same idea informed Neurath’s understanding of popular science education, and especially his development of a visual language for communicating statistical knowledge and a shift in museum exhibits from a place for specialists to store their artifacts to a means for popular education (Neurath 2010; Neurath and Kinross 2009).

All “protocol sentences,” observation reports given within any particular field of science, are conventional, theory-laden, and subject to change as they cannot be specified in isolation from the theoretical systems that are used to explain what we observe. Feyerabend later developed this top-down and holist, rather than foundationalist, account of observation out of the protocol sentence debate of the 1930s in developing his concept of incommensurability, which explains how new theories bring new interpretations of our observations (Kuby 2016, 2020).

The common thread through Feyerabend’s changing philosophy of science was the idea that proliferation of theoretical, or metaphysical, approaches was necessary to avoid being trapped by our own constructions of the world that facilitated insight in the first place. In his early work on incommensurability and holism, this meant that *laissez faire* empiricism would become increasingly isolated from the world as observation languages would become so finely tuned to a particular way of rendering nature that progress could only be made by the imposition of an outside perspective that took a new measure of the same phenomenon.

In correspondence with Kuhn prior to the publication of *The Structure of Scientific Revolutions*, Feyerabend argued that the concept of Brownian motion

¹² Compare Latour’s (2018, 25) point that climate denying elites seek to avoid the constraint of a shared world, “a landscape that can be explored in concert. Here we find the habitual vice of epistemology, which consists in attributing to intellectual deficits something that is quite simply a deficit in shared practice.”

¹³ Fuller (1987, 150–151) saw Neurath’s approach as emphasizing the democratic accountability of artisan-based, experimental observation in opposition to the inaccessibility of scholastic discourse in the scientific revolution or textual hermeneutics in his own time.

could never have been discovered by refining measurements of heat carried out based upon classical thermodynamics (Hoyningen-Huene 1995; Laymon 1977). Feyerabend's argument that Galileo used *counterinduction*, positing a movement of the earth that contradicted established observational proofs of its immobility, made the same point, which led to growing criticism of the idea that science represented a privileged way of understanding the world (Feyerabend 1978). In his later years, while objecting to relativism's tendency to similarly protect entrenched cultures from outside influence, Feyerabend nonetheless argued that the scientist need hold no more deference to an obdurate reality than an artist would (Feyerabend 1994, 1999, 2011).

In one sense, Fuller carries forward this idea of expanding freedom of thought and eliminating deference in science. However, Feyerabend also developed an early understanding of how what we now call echo chambers require some outside force to break down, the very kind of thing we see with post-truth today. Moreover, Feyerabend was alive to the destructive impact that dogmatic pursuit of otherwise liberatory ideas would have on actual human thriving, which is why he abandoned talk of anarchism for dadaism, seeing a way to liberate people without making them slaves to a new ideology (Feyerabend 1978).

Neurath's political philosophy was more confidently connected to a scientific conception of the world, but he also paid attention to the need to challenge the spontaneous deference to expert views, seeking to inform without manipulation. Neurath's concern to avoid metaphysics reflected his concern that some linguistic practices did not seek to reconcile their claims with the other statements within science, but limited their meaning in ways insiders could control for the purpose of manipulation of the emotions (da Cunha 2013). His anti-metaphysical stance amounted to a concern to challenge representations that distort by controlling the meaning of words in ways not accessible to the public or other experts, most notably religious or political obscurantism. Thus, while a scientist cannot point to an electron per se, he or she can coordinate claims about electrons by reference to specific observational equipment believed to be connected to claims about electrons as understood by currently accepted scientific theories. All these statements are subject to change over time and also reflect our changing interests in engaging the world.

Different unarticulated assumptions and values may shape different scientific theories and plans for public policy, but it is relatively easy to verify whether or not a pizzeria in Washington, D.C. is holding children in sex slavery in its basement, if school shootings actually occurred, or if more people voted for one candidate than another in an election. This does not require deep metaphysical agreement on the furniture of the universe, though it does require binding rules and norms that can coordinate disputes.

This is something that post-truth invites the true believer to opt out of, based on the postulation of nefarious conspiracies by those outside the charmed circle. In many cases, the conspiracies may be those the true believers have contemplated or carried out themselves, such as justifying interference with the counting and certification of election results because the other side is presumed to have already carried out the same. Post-truth is psychological projection writ large, again something familiar in the political context of the original wave of the sociology of knowledge. Remmling (1967) called it the ‘growth of suspicion,’ a denial of any innocence of motives, even for oneself. Building on that, courage in one’s willingness to embrace the Big Lie is the cornerstone of fascism.

7 Gaming the Truth and Epistemic Trust-Busting

Fuller begins his latest book on post-truth by dismissing worries that the public is being taken for a ride by alt-right news sources like Breitbart, Big Data firms like Cambridge Analytica, or malign Russian hackers. Instead, Fuller sees the emergence of post-truth as ‘a sign of this project’s genuine democratization,’ displacing experts for individual access to the (individual) truth. Fuller objects to the way experts have managed to control the terms under which their contributions were to be assessed, what Fuller calls a ‘monopoly license,’ an objection rooted in early free-market thinking that gave way in the history of neoliberalism to a more pro-monopoly position. Where neoliberals equated democracy with free markets, Fuller does the same with science by rejecting core set prerogatives to control what counts as knowledge. In his preferred post-truth regime, the experts’ “monopoly over modeling is broken, resulting in a free market with multiple competitors which effectively democratizes control over uncertainty.” Post-truth amounts to “epistemic trust-busting” (Fuller 2020c, 2, 4).

Fuller’s view that “facts can’t be owned *even by the experts*” is an important point (Fuller 2020c, 5). Experts come with distinct limitations precisely because their expertise channels insight in particular ways. Research on internet-based health movements, for instance, has shown that patients have appropriately challenged expert representations of the success of existing medical treatments, challenging collective and individual biases of medical experts by generating a “counter-expertise organization” with “a commission from below” (Lynch 2021, ch. 5; Petryna 2003; Turner 2003, 2013, 168).

But that is not to say we should be indifferent to expertise. “Fairness” in Fuller’s view, involves a kind of removal of expertise behind a perverse version of a John Rawls-inspired veil of ignorance (Fuller 2020c, 6, 21, 87–89). One can’t help but read that as endorsing the flattening symmetry online where an expert

on epidemiology can be treated as just another viewpoint to be thrashed about by a mask-denying covidiot.

One should notice that the public voice that has been valorized here is largely a ventriloquized one, as powerful economic elites or counter-experts on the losing side of core-set debates seek to mobilize publics to upgrade their place in the circulation of elites (Mosca 1939; Shipman, Edmunds, and Turner 2018; Turner 2019).¹⁴ Thus, if dissenting scientists or doctors support herd immunity rather than quarantine, and they fail to sway the core set, the internet increasingly allows them not only to exploit internet echo chambers to seek a reconsideration, but even to poison the well by describing the consensus view as a conspiracy driven by malign motives rather than evidence and honest disagreement.

This is how post-truth erodes the civic sphere and the very possibility of democratic deliberation. Fuller (2020c, 9) endorses the transition away from the university's specialized, controlled, and peer-reviewed journals, which he sees as contributing to the public good only fitfully, to a regime "closer to the information ecology of social media." However, the use of algorithms by social media to keep users engaged with the platform operates as a particularly vicious sort of confirmation bias (Nguyen 2020; Santos 2021).

It is certainly leveling of a sort, but possibly the kind that may function to derail societal solutions to serious problems facing modern civilization. Fuller's view lacks any kind of component urging better education of the masses, or some kind of process informing a deliberative democratic approach familiar from democratic theorists like Jurgen Habermas or Richard Sclove (Sclove 1995).¹⁵ This is deliberate, because such 'tutored' approaches to democratic input are precisely what he opposes, a view he sees as a kind of epistemic paternalism (Fuller 2020c, 80).

Neurath's efforts to find a way to 'tutor' without epistemic paternalism may have distinct limitations. But he did seek to challenge a technocratic approach, what he called pseudorationalism. Even within the sphere of economic planning, he rejected the idea that experts could define what a proper distribution of social

¹⁴ Turchin (2010, 2012) has developed a cyclical theory of intra-elite competition, which predicts increasing conflict throughout the 2020s.

¹⁵ This neglect of raising the bar of popular education is a key lacuna in Fuller's philosophy, not least because the demands placed on an individual to carry out critical, Fullerian interventions in various expert domains are quite extensive. One could argue that few people besides Fuller himself have sufficient background in the wide variety of fields that he has to carry out such interventions. In that case, even granting the desirability of his approach, its execution would depend upon deference to his own expertise by the wider constituencies for which he speaks.

goods would be without democratic debate and recognition of the variety of views of desirable outcomes (Uebel 2008).

While influenced by Marxism's focus on practice as a model for social science, he rejected the view that Marxism, or any other theory, could predict the future and guide policy on that basis. Failing a project something like Neurath's unity of science, connected by him to democratic social planning seeking popular input and coordination of different social interests (da Cunha 2013), social media post-truth can only erode democracy, which is why it has short-circuited civic participation into a paranoid, fascist insurgency in the United States.

Even Robert Merton's discussion of the normative structure of science was influenced by Bernal and the British left scientists' concern with the capitalist 'frustration of science,' seeking to reconcile the role of expert knowledge with a democratic polity in a way that pushed science to serve the public interest (Blackett 1935). Merton rejected the view that social scientists should subordinate themselves to corporate clients or government officials in order to better manipulate the public by field-testing their propaganda. Instead, social scientists should work to understand how information could be imparted to the public without manipulative emotional appeals, as Merton found to be the case with a War Bond drive during World War II. The cause may have been worthy, but the means of carrying it out risked reducing the capacity of citizens for democratic deliberation, turning social scientists into 'technicians of sentiment' (Lynch 2021, ch. 7; Merton 1946).¹⁶

8 Conclusions

Today's version of technicians of sentiment would be proprietors of fake news who seek to manufacture outrage about political enemies by deliberately misleading characterizations of political developments. Fuller responds to this development with a kind of post-truth symmetry principle: both sides are trying to manipulate you, including the one warning of the other's fake news. Tellingly, Fuller sees "Plato's fingerprints . . . in the recent open appeal to fear in the face of uncertainty if, say, American voters failed to elect Hillary Clinton as president or British voters failed to vote to remain in the European Union" (Fuller 2020c, 18). Post-truth in Fuller's hands is an attempt to stand up to an entrenched establishment by

¹⁶ Fuller (2020c, 39–44) cites Edward Bernays as a precursor in promoting post-truth through corporate and political marketing, functioning to inoculate the public against claims to truth by exposure to a steady diet of half-truths. Bernays is a clear example of the technician of sentiment Merton had in mind.

supporting epistemic and political populism, no matter the content or the threat that it poses to the continued existence of important, but imperfect, institutions like science and democracy.

In this sense, Fuller ignores the paradox of tolerance that led Popper to argue that an Open Society cannot be indefinitely tolerant of any position at all without threatening the basis for a free and open society itself. Unlimited tolerance must lead to the disappearance of tolerance. If we extend unlimited tolerance even to those who are intolerant, if we are not prepared to defend a tolerant society against the onslaught of the intolerant, then the tolerant will be destroyed, and tolerance with them.

While it is preferable to convince the intolerant by rational arguments, that may fail if the intolerant “answer arguments by the use of their fists or pistols.” A liberal democracy cannot survive unless it reserves “the *right* to suppress [the intolerant] if necessary even by force” (Popper 1947, 581).

In effect, we can see a ‘democratic paradox’ in this contrast between the U.S. adoption of something close to an absolutist view of political expression and the German banning of Nazi symbols and incitement, part of a broader trend called defensive democracy (Navot 2008). While Fuller has defended Popper as an inspiration for promoting critical thinking over Kuhnian dogmatism (Fuller 2004), his own approach favors populist dogmatism so long as it fixates on dislodging authoritarian experts and established authority at all cost. Popper had developed his position coming out of his disenchantment with the socialist left in Vienna, arguing that the left had failed to fight to defend liberal democracy against incipient fascism (Hacohen 2000, chs. 1–2).

The flip side of this is that fascist intellectuals sought ‘renewal’ and hostility to modernity that have fueled violent and terroristic movements ever since, usually as the result of disruptive demographic, economic and social change that intellectuals exploited (Berman 2003; Todd 2003).¹⁷ Neurath cut his teeth on this point by subjecting Oswald Spengler’s account of the decline of Western civilization to devastating critique, which reinforced his concern that some kinds of truth claims—or relativistic post-truth claims—were designed to mislead by distorting language in a way that clerical or ideological spokesmen could use to manipulate human behavior (Uebel 2019).

In this sense, it is not so much seeking to withdraw from an economic union, raising tariffs, or restricting immigration that make Brexiters and Trumpers such a threat, but their fanciful attempts to scapegoat elites for conspiracies they are too incompetent and disorganized to actually carry out, even should they desire

¹⁷ See also Turchin (2010)s prediction that the 2020s would be a period of increased political instability as competing elites struggle for hegemony.

it. Moreover, scientists can disagree about how to respond to the pandemic, but denying that the virus is a threat or blaming a conspiracy backed by the Chinese government or a U.S. Deep State reflects quite a different kind of discourse than dissenting, but evidence-based, views.

Conspiratorial thinking about elites is the budding ground for fascism and precludes the need to actually engage the opponent. Consequently, legal briefs and court appeals alleging a stolen election are not to be taken seriously, but are merely a pretext to spread the Big Lie. There is no need to follow the rules of the democratic system because it is wholly corrupt and Congressional representatives, and the 'deep state' are conscious and willful actors. Consequently, one can only defend the Constitution, paradoxically, by deposing, and possibly murdering, the Speaker of the House and the Vice President.

Fuller lives in the United Kingdom, where the pathologies of Brexit are arguably less extreme a threat to democracy than what has been going on in the U.S. Moreover, his book went to press before the U.S. election and well before the January 6 Capitol insurrection. However, it was not difficult to see that the election of Trump foreshadowed these events, not least because candidate Trump and President Trump kept speaking in support of not recognizing unfavorable election results, getting an extension on his term to make up for Democratic party interference with his agenda, canceling term limits, and shoring up executive authority virtually to absolutist levels. An understanding of fascism as reflecting declining capitalist social conditions also predicts that appeals to alternative facts would become more persistent, self-reinforcing, and violent, something the British Marxist scientists of the 1930s saw as contributing to the capitalist frustration of science (Blackett 1935).

These kinds of considerations may be wrong or incomplete, but they are absent from Fuller's thinking entirely, so the focus remains on the techniques of spin without regard for whom the client may be, who may end up being quite a bit more dangerous and vicious than Fuller intends to support. If we are forced to choose between the two extremes of Platonic truth-monger or Sophist-for-hire, based on the dichotomy set up by Fuller, the social role of the STS analyst will remain problematic.

Fuller objects to the truth-monger in the current role for philosophers of science as Lockean 'underlaborers' for scientific expertise, shoring up established scientific theories by working out remaining conceptual problems or demonstrating their authority vis-à-vis approaches from outside the scientific mainstream. The more sociological version of truth-monger looks to defend scientists as experts who can only be judged by other experts, a self-warranting and self-selecting view of expertise, or otherwise draw back from symmetry when the fate of the global climate is at stake (Collins and Evans 2007; Latour 2018).

If the alternative to defending the authority of current scientific institutions is to endorse any alternative that erodes deference to expert knowledge, we risk supporting an insurgency of counter experts with their own agendas. The Sophist approach is problematic if one pays no attention to who holds the purse. In that case, the STS analyst risks becoming an epistemological ambulance chaser, seeking out a variety of clients who feel aggrieved by their treatment at the hands of the scientific establishment and need a lawyer to take their case. The motley crew of clients invoked by Fuller include homeopaths, creationists, conspiracy theorists, politicians, university presidents, futurists, and transhumanists. All are entitled to a hearing, the right to be counted as scientific, and the alleged slanders against them rebuffed. Fuller will do it, if not for an hourly fee, then for a book contract or an invitation to give a talk. If desperate times require lawyers, guns, and money, Fuller can offer the first. It's the other two that I am really worried about, however.

References

- Ariew, R., and P. Barker. 1986. "Duhem on Maxwell: A Case-Study in the Interrelations of History of Science and Philosophy of Science." In *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, Vol. 1986, 145–56. University of Chicago Press.
- Aronova, E. 2012. "The Congress for Cultural Freedom, Minerva, and the Quest for Instituting "Science Studies" in the Age of Cold War." *Minerva* 50: 307–37.
- Beddeleem, M. 2017. "Fighting for the Mantle of Science: The Epistemological Foundations of Neoliberalism, 1931–1951." PhD thesis, University of Montreal.
- Berman, P. 2003. *Terror and Liberalism*. New York: Norton.
- Bernal, J. D. 1937. "Dialectical Materialism and Modern Science." *Science & Society* 2: 58–66.
- Bichler, S., and J. Nitzan. 2013. "Capitalism as a Mode of Power." In *22 Ideas to Fix the World: Conversations with the World's Foremost Thinkers*, edited by P. Dutkiewicz, and R. Sakwa, 325–54. New York: New York University Press.
- Blackett, P. M. S. 1935. "The Frustration of Science." In *The Frustration of Science*, edited by D. Hall, J. G. Crowther, J. D. Bernal, V. H. Mottram, P. A. Gorer, and P. M. S. Blackett, 129–41. New York: W. W. Norton.
- Böhme, G., W. Daele, R. Hohlfeld, W. Krohn, and W. Schäfer. 1983. *Finalization in Science: The Social Orientation of Scientific Progress*. Dordrecht: D. Reidel.
- Campbell, D. T. 1965. "Variation and Selective Retention in Sociocultural Systems." In *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory*, edited by H. R. Barringer, G. I. Blanksten, and R. W. Mack, 19–49. Cambridge: Schenkman.
- Campbell, D. T. 1983. "The Two Distinct Routes beyond Kin Selection to Ultrasociality: Implications for the Humanities and Social Sciences." In *The Nature of Prosocial Development: Interdisciplinary Theories and Strategies*, edited by D. L. Bridgeman, 11–41. New York: Academic Press.
- Cartwright, N., J. Cat, L. Fleck, and T. E. Uebel, 1996. *Otto Neurath: Philosophy between Science and Politics*. Cambridge: Cambridge University Press.

- Collins, H., R. Evans, and M. Weinel. 2017. "STS as Science or Politics?" *Social Studies of Science* 47: 580–6.
- Collins, H. M. 1988. "Public Experiments and Displays of Virtuosity: The Core-Set Revisited." *Social Studies of Science* 18: 725–48.
- Collins, H. M., and R. Evans. 2007. *Rethinking Expertise*. Chicago: University of Chicago Press.
- Connors, L., and W. Mitchell. 2017. "Framing Modern Monetary Theory." *Journal of Post Keynesian Economics* 40: 239–59.
- da Cunha, I. F. 2013. "The Utopia of Unified Science: The Political Struggle of Otto Neurath and the Vienna Circle." *Principia: An International Journal of Epistemology* 17: 319–29.
- Danielewski, M. Z. 2000. *House of Leaves*. New York: Pantheon Books.
- Dewey, J., J. P. Chamberlain, A. Rosmer, E. Alsworth Ross, B. Stolberg, W. Thomas, C. Tresca, F. Zamora, and S. La Follette. 1938. *Not Guilty: Report of the Commission of Inquiry into the Charges Made against Leon Trotsky in the Moscow Trials*. New York: London Secker & Warburg.
- Edmond, G., and D. Mercer. 2006. "Anti-Social Epistemologies." *Social Studies of Science* 36: 843–53.
- Feyerabend, P. 1978. *Against Method: Outline of an Anarchistic Theory of Knowledge*. London: Verso.
- Feyerabend, P. 1999. *Conquest of Abundance: A Tale of Abstraction versus the Richness of Being*. Chicago: University of Chicago Press.
- Feyerabend, P. 2011. *Tyranny of Science*. London: Polity Press.
- Feyerabend, P. K. 1994. "Art as a Product of Nature as a Work of Art." *World Futures* 40: 87–100.
- Finchelstein, F. 2019. "Populism without Borders: Notes on a Global History." *Constellations* 26: 418–29.
- Frickel, S., S. Gibbon, J. Howard, J. Kempner, G. Ottinger, and D. J. Hess. 2010. "Undone Science: Charting Social Movement and Civil Society Challenges to Research Agenda Setting." *Science, Technology & Human Values* 35: 444–73.
- Fujimura, J. H., and C. J. Holmes. 2019. "Staying the Course: On the Value of Social Studies of Science in Resistance to the "Post-Truth" Movement." *Sociological Forum* 34: 1251–63.
- Fuller, S. 1987. "On Regulating What Is Known: A Way to Social Epistemology." *Synthese* 73: 145–83.
- Fuller, S. 1988. *Social Epistemology*. Bloomington: Indiana University Press.
- Fuller, S. 1993. *Philosophy, Rhetoric, and the End of Knowledge: The Coming of Science and Technology Studies*. Madison: University of Wisconsin Press.
- Fuller, S. 2000a. *The Governance of Science: Ideology and the Future of the Open Society*. Buckingham: Open University Press.
- Fuller, S. 2000b. *Thomas Kuhn: A Philosophical History for Our Times*. Chicago: University of Chicago Press.
- Fuller, S. 2004. *Kuhn vs. Popper: The Struggle for the Soul of Science*. New York: Columbia University Press.
- Fuller, S. 2005a. "A Parting Shot at Misunderstanding: Fuller vs. Kuhn." *Metascience* 14: 12–9.
- Fuller, S. 2005b. "Kuhnstein, or, the Importance of Being Read." *Philosophy of the Social Sciences* 35: 480–98.
- Fuller, S. 2005c. "Social Epistemology: Preserving the Integrity of Knowledge about Knowledge." In *Handbook on the Knowledge Economy*, edited by D. Rooney, G. Hearn, and A. Ninan, 67–79. Cheltenham: Edward Elgar Publishing Limited.

- Fuller, S. 2016a. *The Academic Caesar: University Leadership is Hard*. Los Angeles: Sage.
- Fuller, S. 2016b. "Social Epistemology for Theodicy without Deference: Response to William Lynch." *Symposium: Theoretical and Applied Inquiries in Philosophy and Social Sciences* 3: 207–18.
- Fuller, S. 2016c. "What is the Problem for Which Interdisciplinarity is the Solution?" *Items: Insights from the Social Science*.
- Fuller, S. 2020a. "The Emergence of Civil Libertarian Science in Pandemic Times." *Social Epistemology Review and Reply Collective* 9 (12): 10–3.
- Fuller, S. 2020b. "Knowledge Socialism Purged of Marx: The Return of Organized Capitalism." In *Knowledge Socialism: The Rise of Peer Production: Collegiality, Collaboration, and Collective Intelligence*, edited by M. A. Peters, T. Besley, P. Jandrić, and Z Xudong, 117–34. Singapore: Springer.
- Fuller, S. 2020c. *A Player's Guide to the Post-Truth Condition: The Name of the Game*. London: Anthem.
- Fuller, S. 2021a. "Knowing the Unknowers." *Journal of Cultural Economy* 14: 364–7.
- Fuller, S. 2021b. "Post-truth." In *Dunc Tank*. February 6, Podcast.
- Fuller, S., and V. Lipińska. 2014. *The Proactionary Imperative: A Foundation for Transhumanism*. New York: Palgrave Macmillan.
- Galison, P. 1997. *Image and Logic: A Material Culture of Microphysics*. Chicago: University of Chicago Press.
- Gil-White, F. J. 2005. "How Conformism Creates Ethnicity Creates Conformism (And Why This Matters to Lots of Things)." *The Monist* 88: 189–237.
- Goldberg, R. F., and L. N. Vandenberg. 2019. "Distract, Delay, Disrupt: Examples of Manufactured Doubt from Five Industries." *Reviews on Environmental Health* 34: 349–63.
- Granovetter, M. S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78: 1360–80.
- Hacohen, M. H. 2000. *Karl Popper, the Formative Years, 1902-1945: Politics and Philosophy in Interwar Vienna*. Cambridge: Cambridge University Press.
- Henrich, J. 2016. *The Secret of Our Success: How Culture is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. Princeton: Princeton University Press.
- Henrich, J., and F. J. Gil-White. 2001. "The Evolution of Prestige: Freely Conferred Deference as a Mechanism for Enhancing the Benefits of Cultural Transmission." *Evolution and Human Behavior* 22: 165–96.
- Hessen, B. 1931. "The Social and Economic Roots of Newton's Principia." In *Science at the Crossroads*, edited by N. Bukharin. London: Kniga.
- Hoyningen-Huene, P. 1995. "Two Letters of Paul Feyerabend to Thomas S. Kuhn on a Draft of the Structure of Scientific Revolutions." *Studies in History and Philosophy of Science Part A* 26: 353–87.
- Hull, D. L. 1988. *Science as a Process: An Evolutionary Account of the Social and Conceptual Development of Science*. Chicago: University of Chicago Press.
- Jamieson, K. H., and J. N. Cappella. 2010. *Echo Chamber: Rush Limbaugh and the Conservative Media Establishment*. New York: Oxford University Press.
- Kuby, D. 2016. "Feyerabend's 'The Concept of Intelligibility in Modern Physics' (1948)." *Studies in History and Philosophy of Science Part A* 57: 57–63.
- Kuby, D. 2020. "Decision-Based Epistemology: Sketching a Systematic Framework of Feyerabend's Metaphilosophy." *Synthese* 199: 3271–99.

- Lakatos, I. 1976. *Proofs and Refutations: The Logic of Mathematical Discovery*. Cambridge: Cambridge University Press.
- Lakatos, I., and P. Feyerabend. 1999. *For and Against Method: Including Lakatos' Lectures on Scientific Method and the*. Chicago: University of Chicago Press.
- Latour, B. 2018. *Down to Earth: Politics in the New Climatic Regime*. Cambridge: Polity.
- Laymon, R. 1977. "Feyerabend, Brownian Motion, and the Hiddenness of Refuting Facts." *Philosophy of Science* 44: 225–47.
- Liston, M. 2017. "Duhem: Images of Science, Historical Continuity, and the First Crisis in Physics." *Transversal: International Journal for the Historiography of Science* 2: 73–84.
- Lynch, M. 2006. "From Ruse to Farce." *Social Studies of Science* 36: 819–26.
- Lynch, M., and S. Cole. 2005. "Science and Technology Studies on Trial: Dilemmas of Expertise." *Social Studies of Science* 35: 269–311.
- Lynch, W. T. 2003. "Beyond Cold War Paradigms for Science and Democracy." *Minerva* 41: 365–79.
- Lynch, W. T. 2020. "Science and Socialism in the Time of Coronavirus." *Social Epistemology Review and Reply Collective* 9: 16–25.
- Lynch, W. T. 2021. *Minority Report: Dissent and Diversity in Science*. Lanham: Rowman and Littlefield.
- McGoey, L. 2019. *The Unknowers: How Strategic Ignorance Rules the World*. London: Zed Books.
- Merton, R. K. 1946. *Mass Persuasion: The Social Psychology of a War Bond Drive*. New York: Harper and Brothers.
- Miller, E. H. 2015. *Nut Country: Right-Wing Dallas and the Birth of the Southern Strategy*. Chicago: University of Chicago Press.
- Mirowski, P. 2011. *Science-Mart: Privatizing American Science*. Cambridge: Harvard University Press.
- Mirowski, P., and E. Nik-Khah. 2017. *The Knowledge We Have Lost in Information: The History of Information in Modern Economics*. New York: Oxford University Press.
- Mirowski, P., and D. Plehwe. 2015. *The Road from Mont Pèlerin: The Making of the Neoliberal Thought Collective*. Cambridge: Harvard University Press.
- Mosca, G. 1939. *The Ruling Class*. New York: McGraw-Hill Book Company.
- Navot, S. 2008. "Fighting Terrorism in the Political Arena: The Banning of Political Parties." *Party Politics* 14: 745–62.
- Neurath, O. 1983. "Pseudorationalism of Falsification." In *Philosophical Papers, 1913–1946*, edited by R. S. Cohen, and M. Neurath, 121–31. Dordrecht: D. Reidel.
- Neurath, O. 2010. *From Hieroglyphics to Isotype: A Visual Autobiography*. London: Hyphen Press.
- Neurath, M., and R. Kinross. 2009. *The Transformer: Principles of Making Isotype Charts*. London: Hyphen Press.
- Nguyen, C. T. 2020. "Echo Chambers and Epistemic Bubbles." *Episteme* 17: 141–61.
- Nye, M. J. 2011. *Michael Polanyi and His Generation: Origins of the Social Construction of Science*. Chicago: University of Chicago Press.
- O'Connor, B. 2021. *Blood Red Lines: How Nativism Fuels the Right*. Chicago: Haymarket Books.
- Oliver, J. E., and W. M. Rahn. 2016. "Rise of the 'Trumpenvolk': Populism in the 2016 Election." *The ANNALS of the American Academy of Political and Social Science* 667: 189–206.

- Oreskes, N., and E. M. Conway. 2010. *Merchants of Doubt: How a Handful of Scientists Obstructed the Truth on Issues from Tobacco Smoke to Global Warming*. New York: Bloomsbury Press.
- Oreskes, N., and E. Conway. 2014. *The Collapse of Western Civilization: A View from the Future*. New York: Columbia University Press.
- Orwell, G. 1980. *Homage to Catalonia*. Boston: Mariner Books.
- Petryna, A. 2003. *Life Exposed: Biological Citizens after Chernobyl*. Princeton: Princeton University Press.
- Piketty, T. 2020. *Capital and Ideology*. Cambridge: Harvard University Press.
- Popper, K. 1947. *The Open Society and its Enemies*, Vol. 1. London: G. Routledge and Sons.
- Porter, T. M. 1996. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton: Princeton University Press.
- Proctor, R. N. 2012. *Golden Holocaust: Origins of the Cigarette Catastrophe and the Case for Abolition*. Berkeley: University of California Press.
- Proctor, R., and L. L. Schiebinger. 2008. *Agnology: The Making and Unmaking of Ignorance*. Stanford: Stanford University Press.
- Reichardt, S. 2021. "Fascism's Stages: Imperial Violence, Entanglement, and Processualization." *Journal of the History of Ideas* 82: 85–107.
- Reisch, G. A. 1994. "Planning Science: Otto Neurath and the 'International Encyclopedia of Unified Science.'" *The British Journal for the History of Science* 27: 153–75.
- Remmling, G. W. 1967. *Road to Suspicion: A Study of Modern Mentality and the Sociology of Knowledge*. New York: Appleton-Century-Crofts.
- Rider, S. 2019. "Modal Power, Self-Conscious Science, and the Critique of Epistemic Paternalism, or How to Change Your Mind: An Interview with Steve Fuller." *Disputatio* 8: 597–615.
- Santos, B. R. G. 2021. "Echo Chambers, Ignorance and Domination." *Social Epistemology* 35: 109–19.
- Schaffner, B. F., and B. Fleming-Wood. 2020. *How Americans Feel about Socialism in the Midst of the Coronavirus Crisis*. Data for Progress. Also available at <https://www.dataforprogress.org/blog/2020/6/10/how-americans-feel-about-socialism>.
- Sclove, R. E. 1995. *Democracy and Technology*. New York: Guilford Press.
- Scott, P., E. Richards, and B. Martin. 1990. "Captives of Controversy: The Myth of the Neutral Social Researcher in Contemporary Scientific Controversies." *Science, Technology & Human Values* 15: 474–94.
- Seidel, M. 2016. "Changing Society by Scientific Investigations? The Unexpected Shared Ground between Early Sociology of Knowledge and the Vienna Circle." *Foundations of Science* 21: 117–28.
- Shapin, S. 1994. *A Social History of Truth: Civility and Science in Seventeenth-Century England*. Chicago: University of Chicago Press.
- Shipman, A., J. Edmunds, and B. S. Turner. 2018. *The New Power Elite: Inequality, Politics and Greed*. London: Anthem Press.
- Sismondo, S. 2017. "Post-truth?" *Social Studies of Science* 47: 3–6.
- Stein, S. M., and T. L. Harper. 2003. "Power, Trust, and Planning." *Journal of Planning Education and Research* 23: 125–39.
- Stout, D. 2011. "Stone Toolmaking and the Evolution of Human Culture and Cognition." *Philosophical Transactions of the Royal Society B: Biological Sciences* 366: 1050–9.

- Thorpe, C. 2009. "Community and Market in Michael Polanyi's Philosophy of Science." *Modern Intellectual History* 6: 59–89.
- Todd, E. 2003. *After the Empire: The Breakdown of the American Order*. New York: Columbia University Press.
- Tönnies, F. 1957. *Community and Society*. New York: Harper and Row.
- Turchin, P. 2010. "Political Instability May Be a Contributor in the Coming Decade." *Nature* 463: 608.
- Turchin, P. 2012. "Dynamics of Political Instability in the United States, 1780–2010." *Journal of Peace Research* 49: 577–91.
- Turner, S. 2012. "Polanyi Defanged." *Social Studies of Science* 42: 945–53.
- Turner, S. 2013. "The Blogosphere and its Enemies: The Case of Oophorectomy." In *Sociologies of Moderation: Problems of Democracy, Expertise and the Media*, edited by A. T. T. Smith, and J. Holmwood, 160–79. Chichester: Sage.
- Turner, S. 2019. "Book Review: The New Power Elite: Inequality, Politics, and Greed." *Journal of Classical Sociology* 19: 208–12.
- Turner, S. P. 2003. *Liberal Democracy 3.0: Civil Society in an Age of Experts*. London: Sage Publications.
- Uebel, T. 2008. "Calculation in Kind and Marketless Socialism: On Otto Neurath's Utopian Economics." *European Journal of the History of Economic Thought* 15: 475–501.
- Uebel, T. 2015. "Three Challenges to the Complementarity of the Logic and the Pragmatics of Science." *Studies in History and Philosophy of Science Part A* 53: 23–32.
- Uebel, T. 2019. "Neurath on Verstehen." *European Journal of Philosophy* 27: 912–38.
- Uebel, T. E. 1992. *Overcoming Logical Positivism from Within: The Emergence of Neurath's Naturalism in the Vienna Circle's Protocol Sentences Debate*. Amsterdam: Rodopi.
- Uebel, T. E. 2000. "Logical Empiricism and the Sociology of Knowledge: The Case of Neurath and Frank." *Philosophy of Science* 67: S138–50.
- Vinsel, L. 2021. "You're Doing it Wrong: Notes on Criticism and Technology Hype." *Medium*.
- Werskey, G. 1988. *The Visible College: A Collective Biography of British Scientists and Socialists of the 1930s*. London: Free Association Books.
- Wronski, L. 2021. *Axios/Momentive Poll: Capitalism and Socialism*. SurveyMonkey. Also available at <https://www.surveymonkey.com/curiosity/axios-capitalism-update/>.
- Wynn, T., and F. L. Coolidge. 2012. *How to Think Like a Neandertal*. Oxford: Oxford University Press.