Trust, Expertise, and Scientific Authority in a Democracy: A Pragmatist Approach

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Draft - March 29, 2024

Abstract

In this paper, I take a pragmatist approach to addressing problems under the headings of "the erosion of scientific authority," "the war on science," or "the death of expertise." I argue that we should not simply be trying to convince the public to trust science as it currently stands, nor should we be asking wholesale questions about whether we should trust science as such. Rather, we should admit that, given the current state of science, society, and science-society relations, there are many good reason for the public to distrust aspects of science that are most relevant to them. The restoration of public trust in science will require major reforms to how science is pursued and how it is embedded in democratic institutions, and pragmatist philosophies of science and democracy can help us see the path forward.

1 The Problem of Trust in Science

It has been common in recent years to hear concerns from all quarters about the "erosion of scientific authority,"[1] "the war on science,"[2] "the death

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[1]See, for example, Kitcher (2011), chapter 1; Safford, Whitmore, and Hamilton (2021); Merkley (2020).

[2]Mooney (2005) is an important early example of this framing; more recent examples include Otto (2016); Tierney (2016); Webb and Kurtz (2022); Tollefson (2022); but cf. Miller (2017); Besley et al. (2019).

of expertise,"[3] or "detrimental / inappropriate dissent in science."[4] From politicians to pundits, from workaday scientists to public intellectuals, there are significant worries about whether the public trusts science, and the impression that such trust has widely eroded in recent years. We must ask, as Naomi Oreskes asks in the title of her influential recent book, "Why Trust Science?" Or, as she puts it in the first chapter: "*Should* we trust science? If so, on what grounds and to what extent? What is the appropriate basis for trust in science, if any?" (Oreskes 2019, 18). We might add as well, Which experts shall we trust, when there seems to be disagreement?

On the one hand, there is good news: in *general*, as an group, scientists are more highly trusted than most other groups, according to survey responses. On the other hand, that trust has declined in recent years, particularly in the wake of the COVID-19 pandemic (Pew Research Center 2023b).[5] And further on the side of the bad news, on specific issues of major social import, there is low confidence in both the underlying science and the recommendations justified by the science. Indeed, according to one poll, Americans seem to have decreasing confidence that climate scientists understand whether climate change is occurring, what is causing it, and how we ought to address it (Pew Research Center 2023a).

Nevertheless, I think we have largely gone about framing this issue in the wrong terms. "Why trust science?" is the wrong question: it puts the cart before the horse. "Should we trust science?" is better but still the wrong question: it is too broad, too wholesale, and takes for granted a monolithic conception of science and a clear line of separation of science and society. We cannot give a wholesale answer to the question at present. Science is not one simple thing, but a congeries of institutions, lines of inquiry, and bodies of knowledge. What's more, different sciences or parts of science have different relationships to society; some abstruse and technical research with little applicability relies on public support but has little social consequence; while other areas of science are deeply intertwined with government regulation, corporate capitalism, the military-industrial complex, or interna-

[3] See Nichols (2017); cf. Eyal (2019)

[4] See Biddle and Leuschner (2015); Melo-Martín and Intemann (2018) Ch 1, but cf. Chs 2-6.

[5] The cited polls focus on the U.S., but the situation does not seem to be qualitatively different in other regions. One major difference may be how these issues are politicized. While in the U.S., conservatives are more likely to express distrust of science, in Europe, this may be more of a leftist tendency (Eyal 2019).

tional/intergovernmental bodies. Furthermore, it is not entirely clear what "trust" even consists in; if someone regularly relies on the products of science in their everyday life, without question, but answers a survey question about their trust in science (in general or in specific cases) in the negative, do we say that they do or do not trust science (Eyal 2019, Ch 3)?

What is clear, I will argue, is that there are many legitimate reasons to mistrust aspects of science under existing conditions. The trustworthiness of science is not a given (Eyal 2019, 46). This goes contrary to the current anxiety about trust in experts, but it reflects the reality of the current situation. One core cause for concern is the conflict between the inevitable value-ladenness of science and the image projected by science as an impartial, value-free authority. Another problem concerns the historical and current entanglement of science with harmful social structures that work against the public good, from racism and patriarchy to global capitalism. What's more, both the incentive structures within science and the epistemic infrastructure within society at large interfere with a trustworthy relation between science and society.

Ultimately, I will argue that what is needed is not a public relations campaign to convince the public to trust science, but to reform science, society, and science-society relations to make science more trustworthy and institutional reliance on science more politically legitimate.[6] I will point towards sources of this needed reform following from the tradition of philosophical pragmatism. The pragmatists, and especially Jane Addams and John Dewey, thought hard about the role of science in human life and in democratic society, at the moment in American history where science was becoming a major force in social and political life. In some ways, they saw beyond the current tangle we find ourselves in, and their thought provides a starting point, though not a complete solution, for the needed reforms.

I will start by reviewing an argument from the pragmatist tradition that all science must and ought to be value-laden, a thesis that has reached near consensus in the contemporary literature in philosophy of science. Next, I will review the positive reasons to mistrust science in certain social contexts, under current conditions. In the following section, I trace the problem to a

[6]In several respects, my argument thus echoes the main arguments of Melo-Martín and Intemann (2018), who argue that the focus on scientific consensus and rooting out "normatively inappropriate dissent" is a mistake. Rather, they argue that we should focus on the conditions that make science trustworthy, as well as those that interfere with warranted trust in science.

certain powerful conception of science-society relations, which I will call "The Old Constitution for Science in Society." After that, I will explore resources in the pragmatist tradition for reaching a better conception of the role of experts in a democracy than is found in the Old Constitution, and I will supplement this with relevant ideas from contemporary philosophy of science and science and technology studies. On this basis, I will outline a New Constitution for Science and Democracy that can help us restore trust in science as an institution.

2 Science is Value-Laden

Many arguments exist against the ideal of value-free science and for the view that science is and ought to be value-laden. There are arguments from underdetermination (Longino 1990), from inductive risk (Douglas 2000), from value-laden concepts and claims (Putnam 2002; Dupré 2007; Alexandrova 2018), and from scientific contingency (M. J. Brown 2020). Philosophers of science now commonly refer to the (near-)consensus that the value-free ideal is untenable (Hicks 2014; Lusk 2021; Holman and Wilholt 2022). Inevitably, values do play a role in science, and an ideal of value-neutrality or impartiality is not only unworkable in practice, but undesirable in principle.

One route to this conclusion runs through the thinking of the main classical pragmatists, Charles Peirce, William James, and John Dewey.[7] According to Peirce's account of beliefs and inquiry, inquiry begins with the "irritation of doubt" and concludes with settling on a belief that appeases that doubt. Unlike the paper doubts of the philosophers, genuine doubt must be backed by some positive reason to doubt. Doubt is of the nature of a practical problem or state of indecision; it interferes with our ability to act, to carry on smoothly with established practice and habit. A belief, by contrast, is (or creates) a kind of habit or "rule for action," and it is established by inquiry in such a way as to afford a return to confident action (Peirce 1878; Browning 1994; Hildebrand 1996). The only criteria for establishing a belief, according to Peirce, is that we are satisfied enough with the results of inquiry in order to settle our doubts and act with confidence; neither truth nor certitude is a requirement (Peirce 1877).

[7] In "Four Traditions in the History of Values in Science" (in preparation), I explore four separate traditions of work in philosophy of science that have drawn this conclusion, including also Marxist, feminist, and risk-management traditions.

On this background, an argument from James's "The Will to Believe" becomes pressing: "Believe truth! Shun error!—these, we see, are two materially different laws; and by choosing between them we may end by coloring differently our whole intellectual life" (James 1896). James here articulates a very basic version of the inductive risk argument, highlighting the trade-off between false positive and false negative errors (Magnus 2013). The choice of how to balance the possibility of believing a falsehood or failing to believe a truth is not amenable to merely logical or epistemic considerations, but is a sort of value judgment. Insofar as the choice has non-epistemic consequences, those value judgments ought to involve non-epistemic (ethical, social, political, spiritual) considerations. Increasingly sophisticated versions of this argument would be developed by later thinkers like C. West Churchman (1948), Richard Rudner (1953), and Heather Douglas (2000).

Neither Peirce nor James seems to have drawn the obvious conclusion in favor of values in science from these views. For James, this is because he doubted that scientific questions could have significant non-epistemic consequences: "What difference, indeed, does it make to most of us whether we have or have not a theory of the Röntgen rays. . . ?" (James 1896). While moral, practical, and theological questions matter in such a way that the tension between "believe truth" and "shun error" must be addressed, scientific inquiries, lacking momentuousness, can focus on minimizing both false positive and false negative error, for as long as it takes. For Peirce, similarly, it is because, "The only end of science, as such, is to learn the lesson that the universe has to teach it" (Peirce 1898). Science was distinguished by Peirce from practical belief by its purity in pursuit of the truth, independent of all consequences for action (Peirce 1898). Unlike his basic account of belief, pure science lacked social momentousness or utility and aimed only at truth (Peirce 1901).

It was Dewey who insisted that consistent application of pragmatist views about inquiry led to rejection of value-free science. For Dewey, science (like any inquiry) is a "practical art" concerned with resolving problematic situations inherently involving action, in which value judgment plays an ineliminable role (Dewey 1915, MW 8:64). While Dewey's logic moved steadily away from personal/mental descriptions of doubt and belief towards a more practical and public concepts like "indeterminate situations" and "assertions," he retained the basic structure of Peirce's doubt-belief scheme and applied it consistently to science. While it is true for Dewey that the values of generality and systematicity were often primary in scientific inquiries, no sharp dichotomy

between scientific and practical reason (theory and practice) is tenable (Dewey 1938, LW 12:162-163). Indeed, Dewey's own definition of "pragmatism" was the thesis that all types of inquiry are species of practical reasoning, controlled by value judgments (Dewey 1915, MW 8:22).

The difference may be a simple result of the rapid changes in the nature of science from the mid-nineteenth century, when Peirce and James formed their core understanding of science, to the turn of the century, when Dewey formed his. While Peirce and James seem to have still felt some pull from the nineteenth century image of science as a gentlemen's leisure activity whose aims were pure, Dewey recognized the significant role that science had come to play in practical affairs. He was also concerned to develop a philosophy of science that could explain and guide the social sciences, whose aloofness from human meaning and consequences is less plausible that the more rarified subject-matter of the natural sciences. However we explain it, Dewey's approach here is both more true to the core pragmatist insights and more suited to science as it exists at present.

Following Dewey, values play a role in science because all inquiry is a fallible response to problems, i.e., to situations which are indeterminate in terms of our understanding of their future development and how we should respond. All judgment involves value judgment, i.e., an interpretation of the bearings of the evidence gathered by inquiry on a hypothesis that depends on what we shall do with that hypothesis if it is accepted as a basis for action. To ignore a broader scheme of social and ethical values is to be irresponsibly reckless or negligent with respect to the consequences of our actions as inquirers. By its nature, science must be value-laden, and it should be so, if it is to be responsible (Douglas 2009, 62).

3 Reasons to Mistrust Science

We have a variety of reasons to mistrust science under present conditions.[8] Some arise from the very value-ladenness of science and the failure of the sciences and others to acknowledge it. Others arise from the sociocultural and institutional entanglements of science. Others are a result of incentive structures and other features of science and science-society relations. Before

[8]Many of the reasons explored below are discussed at length in Melo-Martín and Intemann (2018), Chs 8-9.

trying to get to the root of the problem, I will first review some of these reasons for mistrust.

3.1 Values in Science without Responsibility and Accountability

Science is and must be value-laden; however, it is also largely unaccountable to and unrepresentative of the public (Melo-Martín and Intemann 2018, 123–27). There are no regulatory agencies or citizen oversight boards monitoring scientific inquiry itself. While science is accountable to public and private funding sources to some extent, the former operates primarily via peer review (accountability to other scientists), and the latter via the profit motive (accountability to shareholders). There are, by contrast, no mechanisms that make science accountable to society, except in the narrow regime of protections for human and animal research subjects.

A serious concern arises that, following a Deweyan commitment to democracy, we should be quite sensitive to: if science plays such a significant role, not only in individual decision-making but in public policymaking, the exercise of value judgments by scientists threatens to undermine the role of science in a democracy, and thereby exacerbate the problem we began with. In contemporary democratic societies, science is accorded a special authority in matters of public policy, education, law, technology, medicine, and many other areas. This special status for science is often defended on the basis that science is a neutral arbiter and provider of objective information free from personal and political values. The value-ladenness of science thus renders the role of science in society problematic.

Some have made these arguments forcefully. Liam Kofi Bright unpacks an argument from the earlier work of W.E.B. Du Bois to the effect that science, especially social science, must be value free if it is to secure public trust, for a public that suspects that scientists aim to advance an agenda they disagree with will neither support scientific research nor accept its results (Bright 2018, 2233). While the empirical claim embedded in this argument is dubious (see Hicks and Lobato 2022), there is a normative side to the argument as well. Greg Lusk articulates such concerns as a *political legitimacy argument for the value free ideal*, which purports to show that "Value-laden scientific information is incompatible with liberal democracy" due to the imposition of value judgments by scientists on the public (2021, 104). Another name for

such arguments is "the democratic objection to value-laden science" (M. J. Brown 2020, 71).

In response to this worry, some have attempted to double down on the value-free ideal of science (e.g., Betz 2013). This won't work, because, as we have seen, values are an inevitable and beneficial part of scientific inquiry. Insofar as scientists subscribe to an ethos of science as value-free and internally governed, social irresponsibility is entrenched in the very practice of science itself. It is common within the sciences to deny that science is value-laden or that it is influenced by larger social factors. Anecdotally, when pressed on potentially problematic consequences of their research, rather than talking about steps they are taking to mitigate the problems, some scientists will deny responsibility entirely. They say things like, I am only interested in the truth, not the politics. But since a role for values is unavoidable, that only means that there influence will be haphazard, hidden, or unconscious—an even wore outcome that being unrepresentative and unaccountable.

Insofar as the value-free ideal encourages scientists to pursue purely epistemic goals and ignore the social consequences of its activity, it amounts to an entrenchment of *irresponsibility* in the scientific ethos (Gaa 1977, 536; Douglas 2009, 62). Insofar as scientists subscribe to the view that they should act *unethically* in some circumstances (in the broadest sense of "ethically"), they promote a dangerously irresponsible view of their role in society (Gaa 1977, ibid.). Scientists expressing such views of their relation to society are untrustworthy almost by definition.

Not all scientists and professional organizations hold to this view of the scientific ethos. Indeed, many professional scientific organizations include broad social responsibilities in their codes of ethics (Douglas and Branch 2024). The American Association for the Advancement of Science takes one of the strongest stands in this respect, in their *Statement on Scientific Freedom and Responsibility*:

> Scientific freedom and scientific responsibility are essential to the advancement of human knowledge for the benefit of all. Scientific freedom is the freedom to engage in scientific inquiry, pursue and apply knowledge, and communicate openly. This freedom is inextricably linked to and must be exercised in accordance with scientific responsibility. *Scientific responsibility* is the duty to conduct and apply science with integrity, *in the interest of humanity, in a spirit of stewardship for the environment, and*

> *with respect for human rights.* ("AAAS Statement on Scientific Freedom and Responsibility" 2017, emphasis added)

This statement is so important because it forcefully rejects the idea of scientific freedom as freedom *from* responsibility, and replaces it with the idea that scientific freedom is "*inextricably* linked to" responsibility (Douglas and Branch 2024). It remains the case, however, that there are no mechanisms of accountability to society for science at large. Responsibility without accountability is a dangerous mix for a group or institution with significant social authority. The unaccountability of experts to the public is a concern that Dewey already warned us about in *The Public and Its Problems* (1927).

3.2 Untrustworthy Entanglements

The pretensions of science to a stance of impartiality, to purely seek the truth, is also belied by the many entanglements between science and unsavory social forces and institutions, the frequent *partiality* of science *against* the public good. Perhaps most troubling are the historical legacies *and current practices* of scientific and biomedical sexism, racism, and other forms of discrimination. These entanglements are recounted in books like Cordelia Fine's *Delusions of Gender* (2010), Harriet Washington's *Medical Apartheid* (2006), and Angela Saini's *Superior: The Return of Race Science* (2019). Not only in the distant past, but even today, science has tended to rationalize and perpetuate existing inequalities and systems of oppression. While there are also examples where science has helped to undermine harmful, prejudicial attitudes and social institutions, the history and continuing influence of patriarchy, white supremacy, and other oppressive systems in science contributes to its untrustworthiness.

More recently, entanglements between science and capital have shown to cause serious problems for the reliability and trustworthiness of science (Melo-Martín and Intemann 2018, 98–108). Commercialized science, financial conflicts of interest, and corporate capture of scientific and regulatory institutions are no longer exceptions, but a major proportion of total scientific research output, as science has become increasingly privatized (Mirowski and Sent 2007; Mirowski 2011). This privatization, and the impact it has on how science is done, is in tension with what have long thought to be central scientific norms (Bright and Heesen 2023). The pervasiveness of these influences mean that it is not just individual scientists or groups of minority dissenters that are biased: "[T]hey produce a systematic bias in the community's body

of knowledge" (Holman and Elliott 2018, 4; cf. J. R. Brown 2002, 2008b, 2008a). As Holman and Bruner (2017) show, industry-funded science can create this bias without any individual scientist compromising their integrity. As a result, the influence of commercial interests in science presents us with strong reasons to mistrust many areas of science (Pinto 2020).

3.3 Bad Incentives

One of the most striking blows to the reliability of science in recent decades has been *the replication crisis* (Open Science Collaboration 2015). It turns out, several sciences that depend on statistical testing, including social psychology and biomedical research, have been churning out studies that fail to replicate, a serious problem when replications are rarely performed. The number of fields where this problem applies remains to be determined. In the words of John Ioannidis's provocative expose on the issue, there is a worry that "most published research findings are false" (Ioannidis 2005). It has become apparent that various publication, funding, and promotion incentives in science lead to spurious results and even fraud (Open Science Collaboration 2015; Smaldino and McElreath 2016). Even when the more invidious social and commercial incentives are absent, incentives internal to the scientific community erode the trustworthiness of science.

The rise in prevalence of scientific misconduct, including fraud and fabrication, plagiarism, the use of generative "artificial intelligence" nonsense in journal articles, and more subtle violations of scientific integrity all contribute to the erosion of the trustworthiness of science, and are often driven by these bad incentives as well. de Melo-Martin and Intemann describe both prominent cases of gross misconduct as well as giving evidence that some types of misconduct are disturbingly common and possibly increasing (Melo-Martín and Intemann 2018, 108–10). The "pressure to produce" grants and publications as well as a culture of extreme competitiveness create incentives for such misconduct (ibid., p. 112). A disturbing trend is that machine-learning generated text and images are being published in the peer-reviewed scientific literature despite containing obvious nonsense (Degeurin 2024b, 2024a). Guillaume Cabanac's "Problematic Paper Screener" has to date identified over 75,000 papers that displace signs of algorithmically-generated scientific misconduct in

published papers.[9] The implications of these problems for the trustworthiness of science are severe.

4 The Old Constitution for Science in Society: Separation of Powers

As we have seen, there are many problematic interactions between science and society that suggest that mistrust in science is warranted to some extent. We have a kind of implicit agreement or tacit model about how science and democracy will interact that has proven inadequate to address the kinds of concerns raised so far. We could call this "the social contract for science" (Guston 2000; Douglas and Branch 2024). Following Latour (2004),[10] I prefer to call this "The Old Constitution," though I differ from his analysis in details. The Old Constitution emphasizes the division of labor and a kind of "separation of powers" between scientists and democratic decision-makers that is at the root of the current problems of trust in science and the crisis of expertise.

According to the Old Constitution, science should be a politically legitimate source of authoritative information, and this is guaranteed by four features:

1. Science is impartial or value-free.
2. Science is accountable to the truth, not the public.
3. The interaction of science and decision makers follows a sharp distinction between providing information (epistemic trust in science proper), making recommendations (recommendation trust in science advice), and acting (practical trust in science-based policies).[11]
4. We build trust in science by informing the public about scientific expert consensus.

The Old Constitution places us between a rock and a hard place: if we maintain the value-free ideal, scientists becomes dangerously irresponsible. If we accept value-laden science, we violate the constitution that is meant to guarantee the trustworthiness, legitimacy, and authority of science. What's

[9] https://www.irit.fr/~Guillaume.Cabanac/problematic-paper-screener

[10] cf. Latour (1993), "The Modern Constitution."

[11] See Bennett (2020)

more, the strict division of labor between science and policy making invites a tempting move to displace political controversies from disagreements about values to putative uncertainty in the science, leading to many of the problems and crises with which we began (Hicks 2017; Melo-Martín and Intemann 2018, Ch 10).

We have to replace the Old Constitution based on a better understanding of science and democracy. The fields of *history and philosophy of science* and *science and technology studies* have given us a better understanding of science than the one that informed the Old Constitution. They have reinforced the pragmatist conclusion that science is tied to action and is value-laden. The have show that the lines between science and society, science and the public, science and decision-makers, as well as the lines between information, recommendation, and action, are complex and fuzzy, sites of complex interactivity rather than sharp distinctions. We have to rethink the Old Constitution in line with a better understanding of science.

We also need a better understanding of democracy. While there are many accounts of democracy, I turn to the pragmatist tradition, and to John Dewey and Jane Addams specifically, who have been some of the most astute thinkers on the role of experts in democracy. Dewey and Addams can help us understand the role of scientific experts in a democratic society, and what would be required for science to be trustworthy and politically legitimate.

5 A Pragmatist Account of Experts in Democracy

Democracy was a central concern of the thought of both Dewey and Addams. Neither thought of democracy as simply a form of governance by elected representatives. Each thought of democracy as a larger feature of how communities work together, as an ethos and a way of life. On their approach, political legitimacy must be the *product* of an ongoing, cooperative, democratic process, not something that can be established in advance by epistemological or political argument.

The relation between publics and experts could be summed up in this famous line from Dewey's *The Public and Its Problems:* "The man who wears the shoe knows best that it pinches and where it pinches, even if the expert shoemaker is the best judge of how the trouble is to be remedied"

(Dewey 1927). Despite its unusual pithiness, this line could easily mislead one into thinking that Dewey accepts a sharp division of labor between the public, who determine the problems that policy needs to be solved, and the experts, who provide the information needed to solve them. But this division of labor is vitiated by Dewey's strong commitment to *contextualism* in hist theory of inquiry. Inquiry is contextual in that the problems that guide inquiry shape it (see M. J. Brown 2012, 5). Scientists pursuing problems other than democratically determined public problems provide knowledge whose *relevance* is always *at issue*. Our reliance on such scientific results, however valuable in their original context, is thus questionable.

When we worry about a "crisis of expertise" or "the erosion of public trust in science," we are typically not talking about research in basic science, far from human concerns. We are typically talking about what is sometimes called "regulatory science" or "policy science," i.e., science aimed at informing public decision making or policymaking.[12] While regulatory science may draw on more basic research, those results have only potential relevance and applicability in the new context, and they must be judged anew by inquirers in the new context. It is in this sense that Dewey insists that the public must "judge of the bearing of the knowledge supplied" by experts (Dewey 1927, LW 2:365; cf Rogers 2009, 73).

What did Dewey and Addams offer in the place of either technocratic rule (where experts drive policy) or a sharp division of labor between experts and the public (where regulatory science provides information and the public or their representatives use that information to make decisions)? In Dewey's example of inquiry into the fitting of a shoe, it may seem that while the wearer helps the shoemaker identify the problem, it is the shoemaker who conducts the inquiry. But in the case of the role of experts in democratic contexts, it is the *public* (or perhaps their representatives), not the experts, who are in the driver's seat of the relevant inquiry, while the technical experts play at best a supporting role throughout the process. In other words, it is as if the customer were to consult the shoemaker throughout the process, delegating some aspects of the task, but insisting on being the primary decision maker throughout.

Dewey urged the popularization of knowledge to be made use of in social democracy as well as the use of scientific methods in social inquiry (Westhoff

[12]The one notable exception is the case of whether evolutionary theory should be taught in public schools, which more directly targets basic science.

1995; Bohman 1999). Already by 1894, Dewey argued that "the problem of democracy was the question whether science & philosophy could become tools of action."[13] His concern was that both the results and methods of science become tools for the public to conduct inquiries with the aim of resolving shared social problems. True, sometimes technical questions arise in the course of public decision making that require technical skills of inquiry to answer, and here is where Dewey sees a role for experts. But that role is instrumental to the cooperative social inquiry carried out by the public; reliance on experts is judged necessary *by* the public, not the experts, and its relevance to the problem is likewise judged by the public (Rogers 2009, 73, 77; Festenstein 2008, 101). This does not require that the public develops the special technical abilities of the experts, but only ordinary intelligence combined with basic science education (LW 2:365-67).

An interesting example of the ability of the public to judge the bearing of technical expert knowledge comes from Jane Addams' work at Hull House, specifically the Working People's Social Science Club. Here is how Laura Westhoff describes the workings of the Club:

> At weekly meetings, the club encouraged debate among the intellectuals, politicians, public officials, women, and working people who attended, with the hope of increasing civic consciousness on the part of the participants. It provided an interactive and deliberative public forum in which to blend social science investigation, political policy, and participant experience (Westhoff 2007, 112).

As Westhoff describes it, the Social Science Club at Hull House was a genuine exchange between the experts, the decision makers, and those members of the public that were traditionally marginalized from such discussions. It created truly transformative debate and discussion, across class, gender, and ethnic lines. The effort of Hull House antipated (by actualizing it in practice) late twentieth century ideas concerning "local knowledge" and "lay expertise." As Westhoff puts it, "In these interactions, workers' experiences accorded them the status of experts" (Westhoff 2007, 115). This is not only because the workers have what Collins and Evans call "ubiquitous expertise," but also because everyone is a specialist expert in their own specific spheres of experience and practice (H. Collins 2014, 40–41, 64; cf. H. M. Collins and

[13]John Dewey to Alice Chipman Dewey & children, Hickman (2023), 1894.11.20 (00233). qtd Westhoff (1995)

Evans 2007). Many of those non-scientific forms of specialist expertise are *as* relevant as the expertise of the technical experts when it comes to social problems.

On Dewey's and Addams' accounts, democracy is conceived of as an experimental process of inquiry, action, scrutiny of the results, and revision of decisions (Festenstein 2008, 101). The relationship between experts and the public is a "two-way street" in terms of the exchange of both information and skills (Caspary 2000, 101). The result is superior to a top-down, linear relationship between experts and the public, both because the experts and the public learn from each other (Caspary 2000, 101) and because the iterative refinement of decisions through continued public engagement from a variety of perspectives will tend to mitigate the biases of the expert class (Festenstein 2008, 101). Ultimately, what is crucial to truly democratic social inquiry is that we see the experts not as a separate class acting from the outside, but that they become actually integrated into the communities they serve (Culbertson 2012, 43).

Another example of cooperative, democratic social inquiry can be found in the Hull-House Maps and Papers project, also described by Westhoff (2007). The project, an innovation in social science at the time it began in 1892, was headed by Florence Kelley, who tried to bring a more "scientific" approach to the work of Addams' Hull House social settlement. Working with the Illinois Bureau of Labor Statistics and the the federal commissioner of labor, Kelley and other Hull House residents set out to systematically study the working-poor, largely immigrant neighborhood in Chicago that they served. As Westhoff describes it, "Living in the midst of the neighborhood, Hull House residents relied on the mutual relationships they had with neighbors to render more reliable information." (Westhoff 2007, 117) The residents of Hull House worked with the neighbors to use cutting edge social scientific methods to address the social and economic problems of the neighborhood. It was not a paternalistic, expert-driven project, but a cooperative, democratic one that tried to furnish legitimate information to political decision-makers. One can see it as an early form of community-based participatory research (see Melo-Martín and Intemann 2018, 126).

Perhaps the most significant lesson of the pragmatist account of expertise and democracy is that concepts like *authority* are the wrong way to think about the role of experts of or science broadly. We should not seek an epistemic division of labor in which experts have authority over the public. A better concept is *legitimacy* of expert or scientific contributions to public

decision making, and establishing democratic legitimacy is an ongoing process of cooperation, integration, and mutuality.

6 A New Constitution for Science and Democracy: An Integrative Approach to Restoring Trust in Science

There are many ways in which science in our current social conditions proves itself untrustworthy. Earlier, I diagnosed this untrustworthiness as symptoms of a failure of the Old Constitution for science in society. We must replace the Old Constitution with a New Constitution if we are to restore public trust in science and create a healthy relationship between scientific and democratic institutions.

According to the New Constitution for science and democracy, science should be a politically legitimate partner in solving shared socio-technical problems. Democratic legitimacy is what matters when it comes to public trust. The legitimacy and trustworthiness of science is guaranteed by the four features of the New Constitution, each of which replaces a feature of the Old Constitution:

1. Science promotes the public good.
2. Science is accountable to the public.
3. Determining facts and recommending problem-solutions go hand-in-hand, and must be co-produced by scientists and decision makers.
4. We build trust in science by ensuring two-way democratic structures of communication and cooperation between experts and other members of the public.

Under the new constitution, science and scientific experts are responsible for promoting the public good and accountable to the public through representational, consultative, and cooperative mechanisms. This contrasts with the ideas from the Old Constitution that science should be impartial or value-free and accountable only to "the truth" (whatever that means). The public mission of science must be central in the scientific ethos. This change of focus may raise concerns about the objectivity and reliability of science and the specter of Lysenkoism. If the experts tell the public what they want to

hear, rather than the truth, what use are the experts? But this would not do the public any good, but rather harm. The public needs the aid of technical experts who are competent, principled, sensitive, and responsible. They need reliable and objective experts who are willing to cooperate with them towards solving social problems. This is why the coordinated co-production of problem-definition, facts, and problem-solutions by scientists and the public (or their representatives) must replace the strict division of labor between knowledge-production, recommendations, and decision-making found in the Old Constitution.

It is absolutely crucial to break the problematic sociocultural and instutitional entanglements that make science untrustworthy. Here, we must turn to the pragmatist account of democratic experimentalism through cooperative social inquiry and action. We can also borrow an idea from recent work by Gabriele Contessa (2023), that of *socio-epistemic infrastructure* . Contessa rightly argues that, "[T]he problem of harmful distrust is usually the result of the breakdown of an efficient division of epistemic labor caused by a degraded socio-epistemic infrastructure" (Contessa 2023, 2958). As Contessa points out, the conflicts of interest created by the U.S. healthcare system as well as the prominence of private over public funding for science are contributors to our poor socio-epistemic infrastructure. Epistemic bubbles and echo chambers in social media may be other examples (Nguyen 2020).

We might rephrase point 4 above in the New Constitution as "We build trust in science by ensuring healthy socio-epistemic infrastructures that permit communication and cooperation between experts and other members of the public." This is surely the most difficult feature of the New Constitution to implement, but also the most important. It requires us to recognize that most commercial science is pseudoscience. It puts the profit motive ahead of the public good. It violates the core norm of scientific communalism, keeping trade secrets and restricting intellectual property rather than broadly sharing results.

The professional incentive structure in science, which may have served a purpose in the past, has become inadequate to our current needs and must be replaced. More publications, more funding, more sensationalism are all rewarded to the point that fraud, misconduct, and sloppiness are encouraged. Careful work, nuance, and public service are all undervalued. The high stakes of science funding and of tenure and promotion must be replaced by a more balanced system.

Under the New Constitution, magesterial pronouncements would no longer be tempting to scientists and their public-facing representatives, who would work with rather than talk down to the public. Recognizing the public as their partners and the initiators of social inquiry, experts would come to see themselves as public servants, as facilitators of democracy, and as protectors of the public good.

There are many forces arrayed against restoring trust in science: institutional inertia, misconceptions about science, the interests of global capitalism, and the rising neo-fascism around the world. Many of these same forces oppose increasing and improving democracy, and seek to roll back many of the gains of democracy achieved in the twentieth century. Science and democracy are natural allies that can and must join forces to protect each other and build a better world. It will not be easy to achieve, but worthwhile social goals rarely are.

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