

Pierluigi Barrotta
Scientists, Democracy and Society.
A Community of Inquirers
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Pierluigi Barrotta latest book is an essay in epistemology with a focus on the political implications of knowledge.

The book focuses on the interactions between politics and science in a democratic society, asking crucial questions such as whether science is (or should be) democratic, and whether and to what extent a society is entitled to control scientists' work. Finally, it explores the increasingly important relation between citizens and scientists and the division of the epistemic labor among them. The book is written from a theoretical perspective deeply inspired by American pragmatism, and particularly by Charles S. Peirce and John Dewey's theories of science and democracy, although other sources in the philosophy of science play also an important role.

The overall conclusion of the book, stated since its inception, is that "in a liberal democracy, scientists and laypeople should be considered as members of a single community of inquirers, whose objective is the truth" (p. vi).

Stated as such, the general thesis of the book articulates a fundamental intuition of pragmatism, that is to say the idea that democracy is first and foremost a way of life, a way of organizing social life, and that this way of life requires that all members of this community are actively engaged in the diagnosis and solution of the problems affecting the community.

As Barrotta immediately explains, though, making laypeople and experts members of a single community of inquiry does not imply that their knowledge has equal epistemic status, and that science, like democracy, should be governed by the principle "one head one vote".

To be appropriately understood, this bold claim of the unicity of the community of inquiry requires a more nuanced explanation of the complex — political and epistemological — relations which tie together laypersons and experts, specifying their distinctive epistemic contribution to the life of the community. This is what the book aims to do.

The second challenging claim that is at the heart of Barrotta's book is that

democracy is or should be truth-tracking. This is a claim popularized in political theory by works on the epistemic justification of democracy sparked by an influential article of Elizabeth Anderson (2006) and a book written by David Estlund (2008) over ten years ago (but, in fact, anticipated by more than two decades by a path breaking article of Joshua Cohen). Since then, the spread of the new social media, the increasingly aggressive use of communication tools for targeting consumers and citizens, and the ensuing emergence of post-truth have but made the issue more timely and compelling.

To bring home these major claims, Barrotta proceeds by first discussing three major assumptions that dominates debates in the philosophy of science and which stand in the way of a correct understanding of the place of knowledge in society.

The first assumption concerns the so called fact-value dichotomy and contends that science is never morally neutral, claiming that science is both objective and laden with moral and social values. The upshot of this claim is that any attempt to de-politicize science is doomed. The second assumption concerns the place of science in society, and rejects the shared belief that they can be conceptualized as two autonomous and separate spheres. The second claim only partially overlap with the first, since its centers more particularly on the concrete forms of the complex interactions that take place between the two, rather than on the theoretical justification of the normative status of scientific knowledge.

The third and last aim of the book is to prove that “it is wrong to think that between science and society there is a unidirectional flow of information, which goes from science to society or from society to science”. Overcoming this assumption will prove expedient to redefine science as a collaborative practice within which laypersons and scientists alike must find their place.

The book is composed of five chapters. Chapter 1 and 2 lay the groundwork for the following three by challenging received and entrenched views concerning the so-called neutrality of science and its supposed role in providing scientists and experts with a distinctive type of authority, one that in specified circumstances should trump that of politicians as well as of laypersons.

Chapter 3 attempts to prove the political implications of the epistemological claim of the neutrality of science through a case study. By reconstructing the controversy over climate change, Barrotta reminds us that part of the strategy pursued by negationists against defenders of the claim that climate-change is human induced consists precisely in contending that environmental science is value laden. Climate-change research, so the negationists claim, is invalid since it is premised on some evaluative assumptions which undermines its claim to scientific objectivity.

As Barrotta clearly shows, overcoming the fact/value dichotomy proves, therefore, as a necessary step for any strategy wishing to distinguish between the legitimate acceptance of a normative framework and the arbitrary production of false statements.

As he contends, in order to salvage science from negationists attacks, science should not be made more 'objective' or 'neutral' but, rather, its value-ladenness must be justified and made explicit, so as to open its normative assumptions to public discussion.

Risk-evaluation, for example, is an extremely complex type of scientific activity, in which state of the art scientific knowledge can be put to use only within conceptual framework that set hypothesis concerning rival scenarios, each characterized by different prevalent social, economic and technological systems.

For once, as Barrotta, aptly explains, the naïve claim that "facts are facts" must be squared with the pragmatic fact that any scientific explanation operates a choice between facts deemed relevant for the explanation at hand, and facts which are kept outside the precinct of the explanation. Hence the question: who chooses which facts are relevant? On the basis of which criteria?

In the end, if we want to avoid the risk of an infinite regress, some decision must be made. At this level, "we again find the entanglement between the epistemic and the moral already in the selection of relevant facts, since the same choice of these facts constitutes a morally relevant decision in the evaluation of risk" (p. 62).

This is a fact the pragmatist philosopher of science Charles S. Peirce already noted more than a century ago, when he consciously included the economy of science within his theory of science. Indeed, any attempt at fact checking and knowledge production has a cost, in terms of time and resources, so that decisions concerning which line of research prioritize, which methodology utilize, which type of tests to carry on, when to stop testing, have always to be made, given that if science is by definition falsifiable, then the truth of a theory can never be proven beyond doubt.

By definition, truth is always established beyond *reasonable* doubt. And reasonableness, we all know, is not something that can be established in non controversial ways. But there is more, since, as Barrotta notes, even the choice of a model or method for conducting the inquiry is inevitably value laden as it ends up in types of risk estimates that may unduly damage or promote the pursuit of given social or political goals.

Climate-change is a case in point: according to the analytical method chosen to assess risk, conclusions about the extent of the risk will vary, with tremendous implications in terms of impact on the environment and, in the end, of recommendations to policy-makers.

Politicians must make science-based decisions, yet according to the method, model, technique chosen, the policy implications dramatically change. Not only where and when to stop, but also how to conduct research, is a decision which is impregnated with values.

As a consequence, norms, values, and assumptions cannot be kicked off science. As Barrotta concludes, “Conceptual frameworks are essential to determine the relevance of the empirical data, linking them with hypotheses under scrutiny. Without having any notion of what is relevant, no research could be carried out. No one could examine all the potentially relevant facts. However, different conceptual frameworks do not construct different realities. They rather focus on different aspects of the same reality, enabling cognitive progress through mutual criticism and the accumulation of experience” (p. 80).

Unsurprisingly, Barrotta searches for a solid foundation of his epistemological framework in Peirce’s theory of inquiry, since it provides the most promising account to articulate a clearly fallible conception of science with a solid defense of scientific objectivity. He then extends to Dewey’s philosophy of science in search of an account better suited to deal with the challenges of the social use of science. Whilst it could be contended that Barrotta’s criticism of Dewey is a bit rushed, he is right in seeing Dewey’s epistemology as continuing Peirce’s project with other means and having broader goals in view.

This pragmatist epistemological framework broadly construed shows itself particularly apt to tackle general theoretical questions such as the distinction between pure and applied science (ch. 4) as well as socially and politically more engaging questions such as the place of expertise in a modern complex society (ch. 5 and 6).

The two aspects, as Barrotta points out, are strictly interdependent, since the epistemological subordination of applied to pure science has the effect of displacing the question of the place of science in society to the abstract (and usually more legitimate) level of scientific research to that of the ‘mere’ application of science to social issues.

Dismantling this dualism proves, therefore, a necessary step to formulate this question at its appropriate level.

There are at least two reasons why the entanglement of science and technology should be put center stage. The first, that Barrotta has explored in previous chapters, is the inextricably value-laden nature of science (and not merely of technology). The second is the important knowledge-producing effects of applied research. As a paradigmatic example, Barrotta examines the Manhattan project for the development of the atomic bomb, but also pharmaceutical research, to give another prominent example, is a case in point of how the search for solutions to applied problems prompts the advancement of ‘pure’ research,

as solving practical problems inevitably raises theoretical questions whose solution is required if the practical problem is to be solved. To that extent, one has to see applied research as being certainly research driven, but also as being research promoting.

As a result, as Barrotta notes, the very term ‘applied’ appears to be profoundly inadequate to describe the epistemic status of this type of knowledge.

The distinction between the two types of knowledge, then, seems to be better captured in terms of a functional distinction. What is practical or theoretical is not, therefore, the type of knowledge but, rather, the use to which it is put. We would then have to distinguish between a practical and a theoretical use of knowledge, rather than of a type of knowledge that would be practical or theoretical in itself.

This is, in passing, the lasting lesson of Dewey’s epistemology, with his functional distinction between propositions and judgments.

In chapter 5 Barrotta picks another central theme in pragmatist epistemology, and one that, again, is central for the overall purpose of the book, which is the nature of ethical reasoning. As Barrotta correctly points out, the overcoming of the fact-value dichotomy undertaken in the first part of the book requires not only the debunking of some central thesis in the philosophy of science, but also a radical shift in our basic understanding of the logic of moral reasoning.

Indeed, if one accepts the pragmatist thesis of the continuity of inquiry, it follows that ethical reasoning and scientific reasoning are but two variants of a single logical form, which is inquiry. As a consequence, ethical claims must be assigned the same epistemological status of hypothesis that is usually attributed to scientific propositions.

Warranted assertability, in Dewey’s language, provides then the common norm to which ethical and scientific reasoning must submit.

As a consequence of this move, we do not have anymore true statements on the one hand, and subjective expressions on the other, but falsifiable hypotheses on both sides of the divide. Similarly, ethics and science are said to rely on methods for testing hypotheses which, whilst different because answering to different epistemological conditions, respond to the same scientific logic.

Unsurprisingly, Dewey relies on the same framework in order to model ethical and scientific reasoning, finding in the unarticulated perception of something problematic the experience prompting intellectual reflection. Barrotta then recapitulates the well known phases of the logic of inquiry, showing how they are inflected according to the specificity of different forms of inquiry.

The sixth and last chapter weaves the threads explored in previous chapters together, exploring the implications of such a view of sciences for democracy,

and he does it once again by taking his starting point in American pragmatism.

Here Barrotta elaborates on recent Peirce-inspired literature on pragmatist epistemic justification of democracy, an approach that relies on the idea of democracy as being 'truth-tracking' to provide a justification of why democracy is the most preferable political regime.

Relying on works by Cheryl Misak and Robert Talisse, two devoted Peirce scholars, Barrotta endorses the claim that "the scientific method is the only one that is democratic", (p. 146).

One might contend that such an account overemphasized the intellectualistic dimension of politics, as scholars such as Iris Marion Young, or José Medina, have contended. To that extent, it could be (and it has actually been) objected that reference to inquiry provides only a necessary, yet not sufficient condition if one aims at producing a full-blown justification of democracy.

Yet Barrotta's aim is more modest, and to that extent it is exempt from this criticism. As he explains, his purpose is, rather, to work out "the philosophical framework in which discussions on institutional policies and, in particular discussions on the governance of science in a democratic society, should be placed" (p. 148).

To that extent, Barrotta's account of democracy shares many assumptions with the Habermasian conception of the public sphere, as pride of place is given to the epistemic practices of discussion and deliberation, and to the normative requirement of maximal inclusion.

Whilst Barrotta's endorsement of Peirce's perfectionist understanding of the democratic community as presupposing virtuous individuals could be taken as antiliberal, what Barrotta has in mind is a very 'deweyanized' Peirce. Indeed, Peirce's explicit anti-liberalism is rejected in support of a plea for an educational project aimed at spreading to the largest possible number of people what Peirce called 'the laboratory habit of mind', and which Dewey would call 'democratic habits'. One wonders, then, why these habits would have to be limited to scientific ones, since a concern for cooperation seems to be as important as that for the search for truth in the establishment of a well functioning community of inquiry.

I doubt that Talisse would be happy with Barrotta's defense of Peirce's perfectionism, even if purged from its more intolerant overtones. A possibly more promising theoretical strategy would have required to drop Peirce's guide since the start and follow from the beginning in Dewey's footsteps.

And it is surprising that in a book so thoroughly devoted to the overcoming of the dualism between science and ethics, Barrotta concludes defending the necessity to distinguish epistemic virtues from values, as if the value of epistemic virtues themselves could be separated from larger questions of value.

Here, too, a closer look to Dewey's theory of democracy would have, perhaps, offered promising tools to overcome some aspects of Peirce's scientism that still looms in Barrotta's text.

In conclusion, Barrotta succeeds in providing an original reflection on some of the most daunting challenges that scientific knowledge poses to the well functioning of democratic societies. It does so by reminding us that science and democracy are much similar than we usually admit, and that understanding their common roots is a necessary steps if we are to appropriately understand how science can promote social progress, that is to say how science can be made answerable to social goals without being subjected to the ebbs of political power.

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