# Pragmatism and Critical Theory of Technology

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    Larry Hickman's comments on my work in his recent book, Philosophical Tools for Technological Culture (pp. 170-172), pose a peculiar challenge for me. I have not read much of John Dewey's work since I was a student and the overwhelming impression I retained was of a thinker who promoted a scientific-technical worldview of the sort I was rebelling against in taking up Continental philosophy. Hickman reminds us that Dewey is much more than that and he has certainly made a convincing case for Dewey's importance as a predecessor. But there remain significant ambiguities in Dewey's appreciation of science and technology which make me reluctant to embrace him fully. For historical reasons, these ambiguities are now more visible to us than they were to Dewey and his time. I find it surprising that Hickman has not himself noticed their peculiar effects on his own language and thought under Dewey's influence.

    Hickman's comments make me reflect on my own path to philosophy of technology. I arrived at my approach starting out from Martin Heidegger and the Frankfurt School, that is, from doctrines keenly sensitive to the failure and indeed the threat of modern technology, the famous "dialectic of Enlightenment." The dystopian sense of oppression by technology, or more precisely, by technically mediated institutions, has never entirely left me. On the other hand, I have learned through the experience of working with actual technology that the logic of dystopia is too totalizing and does not correspond to the rather chaotic realities of technical life. Human beings in a technological society are far from powerless and the future is wildly unpredictable. Constructivist sociology of technology has recognized these realities and so helps me to articulate my own sense of the workings of technical life and culture. How to mediate these two different views, a dystopian critique and a constructivist analytic? This is the background agenda of my work.

    Does Dewey fit in with this agenda? Hickman is correct in pointing out that Dewey believed in the complex social character of technology and rejected technological determinism and essentialism. To this extent he can be said to anticipate constructivism. I also share his concern with democracy. I could probably have cast much of what I wanted to say in Dewey's terms had I understood him better earlier.

    But Hickman's claims are quite ambitious. He argues that the critical contribution of Heidegger and the Frankfurt School is either misguided or anticipated by Dewey, whose "general pattern of inquiry ... is capable of absorbing the agenda of the critical theorists" (p. 80). He also claims that Dewey anticipated the entire transformation of our view of technology since the constructivist turn of the 1970s and 1980s. It is rather remarkable, if Hickman is right, that those associated with these trends have not made

use of Dewey's insights. Most scholars in current technology studies do not mention him at all. So, if I have erred in overlooking Dewey, I am not alone.

Hickman's work encourages us to look at Dewey again and to learn from him where we can. That we have not done so yet is no doubt explained by the fact that Dewey became unfashionable and was no longer much read in the formative period of those now active in technology studies. He went out of fashion in part because of the triumph of logical positivism, now even deader than Dewey ever was. But positivism would not have had any influence on me or on many of those in my generation who now write about technology in philosophy, sociology, and history. At least for me, Dewey's rhetorical celebration of science, technology and American liberalism were far more of an obstacle to appreciating his thought. It is this rhetoric which inspires my comment, which Hickman quotes, about Dewey's uncritical appreciation of science and technology.

Dewey's attitude toward science and his language pose a special problem as Stanley Cavell (1990) notes in his recent discussion of the philosopher. Cavell's criticism of Dewey as an Enlightenment optimist unable to address the "existential" level of individual experience has been refuted by scholars more sympathetic to Dewey. And yet there is an aspect of Cavell's critique which I fear is correct (see Saito, 2001).

Dewey did not have the tragic sense of this century that one finds in the European thinkers who inspired me as a student. He lacked the dystopian sensibility that would have brought him face-to-face with the threat of science and technology. This lack shows up in an inflation of the language of science that is rather shocking for someone schooled in the Continental tradition (or in Cavell's case, for an admirer of Emerson). For example, the constant talk about experimental method extended into every aspect of life suggests a narrowly manipulative and intellectualist attitude toward the world. Readers of Dewey's writings on art and education point out that his thinking is belied by his language, but it is difficult to overlook nevertheless.

This rhetoric is constantly at work in Hickman's book which it shapes at a fairly deep level. Hickman wants to use the term "technology" to refer to all reflective activities that aim at problem solving. "Technique" would then be unreflective or habitual activities. He cites Dewey's "What I Believe" (1930 [1991]) in defense of this definition: "Technology signifies all the intelligent techniques by which the energies of nature and man are directed and used in the satisfaction of human needs" (cited by Hickman, p. 8).

At first it seems that Hickman's usage is not too far from everyday language since he includes a reference to artifacts working on raw materials in his definition of technology (p. 26). But it soon transpires that concepts and ideas are just as much artifacts and raw materials as bulldozers and iron ore. Thus technology overflows its usual boundaries to embrace just about everything involving cognition. It is, Hickman asserts, equivalent to "inquiry." The case is aggravated still further by Hickman's tendency to recast every accomplishment as the solution of a problem. Novels and sonnets end up as technological achievements (p. 33)! This makes sense from Hickman's standpoint because of a peculiar conceptual slippage that transforms life experiences and their articulations into instrumentalities. Hickman writes, for example, of "tools and artifacts of all types, including meanings and significance ..." (p. 141).

How important is this conceptual juggling with the word "technology"? If it were merely semantic, I would not like it, but I would have to offer Hickman the same

freedom to deform the language I have claimed in my writings. But it is more than semantic. Every once in a while Dewey's strong admiration for science and technology (in the usual sense) overtakes his critical faculties, and this is reflected in Hickman's discourse as well. Thus Hickman writes that, "There are good grounds for applying the methods that have proven successful in the technoscientific disciplines to social problems" (p. 81). Elsewhere, he claims that, "In Dewey's view, then, there are many paths to technological revolution-a revolution that would democratize technology by introducing into political and social life the types of technologies and techniques that have proved so successful in the various technoscientific disciplines" (p. 182).

Now, this is not at all what I have in mind by the democratization of technology! I can thus accept all of Hickman's claims about my agreement with Dewey while still reserving my doubts about the identity of our views (p. 72). Dewey, and evidently Hickman too, do not have a strong sense of the tension between science and technology and the everyday lifeworld in which meanings and significance are formed and democratic initiatives nurtured. They blur this all important boundary with the likely result that despite their intentions and protestations, they will lend credence to the technocratic ambitions of those who see themselves as the bearers of the "methods that have proven successful in the technoscientific disciplines."

This was after all the identity chosen by those who in the 1960s gave science a bad name by aping its methods for inhuman ends, for example, the so-called "pragmatic" intellectuals behind the Vietnam War. They appear in the Pentagon Papers busy solving the "perceived problem" of conquering Vietnam through the application of "behavioral science." It is not enough to recognize that their claim to be engaged in scientific problem solving was fraudulent. We also need to understand how such a claim could be made in the name of science. What is it about the "methods that have proven successful in the technoscientific disciplines," such things as quantification and experiment, that lends itself to such uses? Nor is this simply a matter of the undue influence of private interests, although undue influence there certainly is. There is something in the very structure of our scientific-technical rationality that needs reforming to anchor it firmly in humane pursuits.

I get hints from [Hickman](#) (for example, pp. 58-59) that Dewey has some resources with which to address this issue, but I cannot be sure that there is anything more than hints there to work with. What is unfortunately all too clear is the rhetorical inflation of science which may have had more justification in the days of the Scopes Monkey Trial than it has today. This is why the criticism of Dewey's supposed naïve confidence in science and technology continues to resound through the decades.

What does it mean that Dewey and Hickman choose to express themselves in a way that now appears excessively friendly to Enlightenment rationalism? Surely Dewey's case is related to his national and generational situation. Like the other pragmatists, Dewey reflected the American experience, which seemed quite hopeful during the first half of the twentieth century. The progress of science and technology in America did not meet up with a strong culture-critical countercurrent as it did in Europe. Relatively untroubled by such criticism, the hegemony of scientific-technical thinking flowed into many channels. Some of these channels Dewey deplored, for example, technocratic thinking. But Dewey himself opened and explored another of these channels, and this is what forms the obstacle to his reception for me. I do not believe that the contest

between scientific-technical rationality and superstition is the central struggle of our time, though it may well have been for Dewey's generation.

While Hickman has done a great service to Dewey's reputation in rehabilitating him as a philosopher of technology, his interpretation shares this historical limitation of Dewey's thought. Other approaches to Dewey suggest a more problematic relation to modernity. Perhaps we will revise our view of him in philosophy of technology by confronting these interpretations with Hickman's. This is a task I cannot accomplish here.

Instead, I would like to show how these reservations about Hickman's version of Dewey work themselves out in what I take to be a fundamental difference between our approaches. While Dewey and I no doubt agree on many things, I have reconstructed the dystopian critique of technology inside the constructivist approach, and this is something I do not believe I share with him. I emphasize, as he does not, the essentially hierarchical structure of technical action, the asymmetrical relation between actor and object which, when it overtakes large swaths of human relations, tends to create a dystopian system. The need for technical democracy is not rooted merely in the general desirability of democracy, but in the specific threat of technocracy which arises from technicization as such.

I relate this threat not to the ontological problematic of a Heidegger, but to the political consequences of persisting divisions between classes and between rulers and ruled in technically mediated institutions of all types. The point is that technology can be and is configured in such a way as to reproduce the rule of the few over the many. Designs which have this effect then also narrow the range of interests and concerns that can be represented by the normal functioning of the technology and the institutions which depend on it. This narrowing reinforces an elite power, but more importantly, it causes human suffering and damage to the natural environment. Opening up technology to a wider range of interests and concerns could lead to its redesign in ways that support democratic self-management in the future.

In support of this view, I have attempted to reconstruct the concept of the "essence" of the technical as a social phenomenon. The primary attributes of technology criticized by Heidegger and Marcuse, such as its decontextualizing treatment of its materials, figure in this concept alongside a second level of social involvements that, while varying from one society to another, are intrinsic to technique in some form in every society. This second level subjects technical design to a broad range of influences from beyond the technical community. These influences, emerging in the everyday lifeworld of society, reflect the demands of a way of life and an image of what it is to be a human being. They are eventually embodied in design.

The essence of technology is historical on these terms, or rather epochal, a dispensation that depends on the particular pattern in which the socially variable dimensions of technology are fused with its unique way of encountering the world. The technocratic evolution of modern societies represents one possible realization of this essence, a realization that I argue is peculiarly truncated by the demands of power. In applying technical controls to human beings while restricting the breadth of social influences that can affect design, it perpetuates elite power through the structure of technology itself. In the process it mutilates not just human beings and nature, but technology as well. A fuller realization of technology is possible and necessary. In a

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society completely organized around technology, in which new possibilities of technocratic repression emerge, democratization is necessary to formalize and sustain the informal feedback loop that has always joined technical design to the social world in the past.

Of course Dewey had intimations of the technocratic threat to democracy contained in the extension of technology. In Questioning Technology I quote a passage in which he discusses the threat. Hickman summarizes Dewey's argument against technocracy usefully (pp. 138-139). I am in complete agreement with these reflections on the inevitable subservience of expertise to established sources of power, either economic or democratic. Dewey is also right that technocrats cannot anticipate and serve the very needs the articulation of which they repress in establishing their untrammeled authority. I say much the same things as Hickman points out.

However, Hickman concludes that my critique of technocracy leads me to favor small scale and local technological reform in contrast with Dewey who advocated the democratization of industrial society (p. 172). This is not the case. I have never been an advocate of the localist position and the latest edition of my first book on technology, Transforming Technology (2002), reproduces my critique of it unchanged (pp. 140-144).

Although I am largely in agreement with Dewey on the problem of technocracy, in my view he did not develop a theory of its threat beyond noting the difficulties it makes for traditional democratic arrangements. I believe I go considerably further (or at least elsewhere) in the analysis of the nature of technology and the intrinsic reasons it must threaten other values when its reach expands excessively without guidance from new forms of democratic intervention and control.

All this is not to say I regard John Dewey as irrelevant. I agree with Larry Hickman that he has an important role to play in current technology studies. It is up to us now to explore his contributions critically, especially his theories of art and education. Dewey can, after all, help us to connect our field with democratic concerns.

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