

**Review-article on Andrew Feenberg, *Questioning Technology*.  
New York and London, Routledge, 1999.**

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Andrew Feenberg's *Questioning Technology* (1999) is his third book in a series of studies which undertake to provide critical theoretical and democratic political perspectives to engage technology in the contemporary era. In *Critical Theory of Technology* (1991), Feenberg draws on neo-Marxian and other critical theories of technology, especially the Frankfurt School, to criticize determinist and essentialist theories. In this ground-breaking work (which will go into its second edition in 2001), he discusses both how the labor process, science, and technology are constituted as forms of domination of nature and human beings, and how they could be democratically transformed as part of a program of radical social transformation. In *Alternative Modernity* (1995), Feenberg turns to focus on constructivist theories and the ways in which individuals and groups can reconstruct technology to make it serve more humane and democratic goals. His most recent book draws on his earlier work while polemically developing his own positions within contemporary debates over technology.

For Feenberg, technology is the most important issue of our era. It is a major constituent of contemporary society and is intimately connected with politics, economics, culture, and all forms of social and personal life. He opens *Questioning Technology* by arguing that over the last centuries democratic movements have called for debate and political control of increasing domains of social life. This process began with public debate over issues concerning the state, politics, and law under the impact of the Enlightenment and democratic revolutions. It next took the form of movements to democratize management and control of the market and the economy under the influence of Marxism and the socialist and labor movements (viif). Public debate and control over education and medicine emerged in the 19th century, while in this century, Feenberg suggests, democratic discussion concerning technology, its nature, effects, social management, and reconstruction, is a fundamental issue for the present age.

In theorizing technology, Feenberg carries out sustained attacks on technological determinism and essentialist theories. Technological determinism follows a similar logic as economic determinism and both, Feenberg suggests, have pernicious philosophical and political implications. If the market and the economy is a quasi-natural organism, subject to its own laws and autonomy, attempts at management or control can be dismissed as interference with the natural order. Likewise, if technology is an autonomous force impervious to political control, attempting to manage or reconstruct it is either a foolish or hopeless enterprise.

Theories of technological determinism emerged after World War Two which either celebrated technology's modernizing features or blamed it for the crisis of Western civilization (i.e. Heidegger, Ellul, etc.). Determinist theories thus devolved into essentialism, both of a negative and positive sort. Theorists such as Heidegger, Ellul, and their followers attributed a negative essence to technology, seeing it as a force of domination and totalitarianism. On this view, technology is a demiurge of the modern world, an autonomous juggernaut immune to democratic

control or humane reconstruction, a framework, or Gestell (Heidegger), that constitutes the very structure of the modern world and lived experience. This dystopic and technophobic essentialism is contrasted to a technophilic essentialism, in which technology is characterized positively as sound control of nature, as a force of efficiency, rationality, and progress.

Technological essentialism, Feenberg notes, has given way in the contemporary era to constructivist views, which conceive of technology as socially constructed, as dependent on specific social structures and cultural values, thus robbing it of its independent force and power. Social constructivism sees the creation and development of technology as subject to contingent social factors and decisions, analyzing the specific individuals and groups who construct various technologies (10ff). It rightly sees the matrix of social interests and groups that goes into the construction of technologies, but its micro-descriptive and empiricist dimensions often bracket out certain overarching social imperatives and political interests. Hence, social constructivist theories separate analysis of technology from theories of society and engage in empirical description of specific technologies. Such theories abandon a more systemic and historical optic which conceptualizes technology as a key constituent of the contemporary world and which attempts to articulate and critically engage its defining features and major effects. "Thus, although constructivist sociology has placed particular technologies on the agenda in new ways, the basic questions of modernity posed by an earlier generation of theorists are rarely addressed today in terms of the general problematic of technology" (11-12).

Feenberg wishes to combine a form of constructivism with more systematic and socially critical views of technology such as are found in theorists like Marcuse and Foucault who analyze the links between technology and power. Such critical theorists dissect the ways that technology serves the interests of social domination, and open the space for discussion of alternative forms of technology. Feenberg links social theory and philosophy to overcome one-sided approaches which either essentialize technology or reduce it to social facts. Thus, he attempts to mediate between philosophical substantivist and social science-oriented constructivist views, criticizing philosophical essentialists, such as Heidegger, Ellul, and, Habermas for their reductive, determinist, and excessively abstract views of technology. Yet Feenberg also criticizes constructionist views which solely see technology as a neutral instrument, which propose merely descriptive accounts of specific technologies in disparate historical contexts, and which renounce broad philosophical or critical perspectives.

### Democratization and the Reconstruction of Technology and Society

Feenberg, then, wants to merge philosophical and sociological theories of the role of technology in modernity with reflection on actual technologies, to combine social theory and social research, philosophy and critique, analysis and reconstruction. One of his key contributions to theorizing technology is connecting philosophically-oriented social theory of technology with theories of democratization. He notes that while technology is seen as a major power in contemporary society, it is often said to be incompatible with democracy. Feenberg, however, wants to demonstrate how technology can be part of a process of societal democratization and how technology itself can be restructured to meet basic human needs. In this process, technologies should be created to help produce a more democratic and egalitarian society, thus focusing on the potential for the social reconstruction of society and technology.

Rejecting all determinist and reductivist theories of technology which would ascribe to it an abstract essence, Feenberg sees technology as a contested field where individuals and social groups can struggle to influence and change technological design, uses, and meanings. In this conception, the very construction of technology is thus subject to democratic debate and contestation. Feenberg sees technology neither as determining nor as neutral, arguing that democratization requires radical technical as well as political change. He argues convincingly that there can be no genuinely democratic and progressive political change without technical change, without the reconstruction of technology, and, vice-versa, no radical change of technology without democratic political change. In his view, the two are vitally interconnected and radical social reconstruction should aim at once at the transformation of society and technology.

Thus, Feenberg develops a dialectical approach to technology that perceives both negative and positive uses and effects, seeing technology as an always contested field that can be reconstructed to serve human needs and goals. Consequently, he develops a position that neither falls into naive technological optimism, or rigid technological determinism and technophobia. Rejecting dystopic positions that would simply repudiate technology tout court, Feenberg argues that it is more productive to focus on its reconstruction rather than its vilification. He claims that post-1960s struggles have put in question absolute faith in science and technology, and the individuals and institutions which develop and implement it. With a public questioning technology, demanding changes, and in some cases carrying them out, technology is thus more flexible, transformable, and amendable to democratic debate and reconstruction than previous theories had indicated.

In his major works, Feenberg succeeds in combining the articulation of theoretical and cultural perspectives on technology with concrete studies of struggles over the control and construction of technologies. In Chapter Two of *Questioning Technology*, he suggests how the events of May 1968 in France, which he sees as the high point of the New Left, involved contestation of technocracy. This involved critique of technical control of the workplace, education, government, and culture by technocratic elites, and programs for more democratic participation and self-management. Likewise, he argues in Chapter 3 that the most progressive elements in the ecology movement -- Barry Commoner is his example -- call for less-polluting, more sustainable technologies. Hence, the sort of environmentalism with which Feenberg aligns himself calls for the reconstruction of the technological environment and not just less production, population, and reformist practices (though these demands too have their value, as he argues, pp. 68ff).

Feenberg is very skilled at marshalling examples and case studies to illustrate his theoretical and political arguments. As examples of the reconstruction of technology to serve social and human needs in his earlier *Alternative Modernity*, he provided studies of how French consumers transformed the Minitel Videotext system from an information data base to an interactive system of communication articulating popular desires and needs (1995: 123-66). The French telephone system initially provided a Minitel telephone/computer apparatus to each customer free of charge that would allow individuals to tap into data bases to get weather and railway information, news bulletins, and other forms of information. It was intended to help enable the French to interact in a high-tech economy and thus to aid the process of French modernization. In practice, however,

individuals hacked into bulletin boards which were reconfigured to allow message posting, and eventually generated split-screen chatlines that enabled diverse forms of social interaction and connection. This expropriation shows how individuals could reconfigure technology to serve their own purposes which may have been at odds with the interests and goals of those who designed the technology. Feenberg's example concerns how the French people used Minitel to engage in interpersonal discussion, to facilitate sexual adventures, or to promote political projects, rather than just to consume officially-provided information, as the government proposed.

Feenberg also provided studies of how women struggled for alternative childbirth technologies and practices, how AIDS patients militated for alternative medicine and health care, and how Japanese critiques of technology contain conceptions of alternative models of modernity and modernization (1995). In *Questioning Technology*, he also marshals copious examples of actual reconstruction of technology to demonstrate that his project of democratizing technology is grounded in actual struggles. In these ways, he is able to counter pessimistic and dystopic perspectives that technology cannot be changed, that it is the fate of the modern world to live in an "iron cage" of technological domination (Heidegger and Max Weber). To subvert this form of determinism, Feenberg provides cases studies and examples which indicate that technology is subject to democratic debate and transformation and can be reconstructed to fulfill human needs. In his examples, technology is seen as subject to contestation, reconstruction, and democratic participation which directs it to serve human and social needs and not just hegemonic societal interests. His examples show how technological apparatuses that were devised by elites according to economic, technical, and functional requirements could be resisted by groups involved in the technical systems and reconfigured to better serve their own needs. Appropriation of technical knowledge and tools for purposes opposed to their original design and implementation shows that technology is more complex, flexible, and subject to contestation and reconstruction than in many existing theories and critiques. Likewise, the expropriation and reconstruction of technologies and technical practices to serve countergoals and values points to the contested and constructed nature of technology and how instruments of control or domination can be transformed into tools of democratization and struggle. This sort of analysis suggests the need for more multilayered theories of how technologies are introduced, implemented, and developed, and subject to subversion and reconstruction.

### Philosophical Perspectives on Contemporary Technology

I have suggested that the strength of Feenberg's approach is his integration of the development of philosophically-grounded perspectives on technology with concrete studies of actual construction and reconstruction of salient technologies along with proposals for making the design and use of technology an issue of political debate and democratic politics. In the second part of *Questioning Technology*, Feenberg spells out his concept of "democratic rationalization" that includes popular participation in the adventure of technology, inserts agency into technical systems, and provides openings for the democratization of technology. In the third part of his book he turns to developing his philosophical perspectives in discussions of technology and modernity and his efforts to develop a critical theory of technology.

In polemicizing against essentialist conceptions of technology that reduce it to technique,

instrumentality, Gestell, efficiency, and the like, Feenberg argues for an approach that "provides a systematic locus for the sociocultural variables that actually diversify its historical realizations" (201). Feenberg proposes a distinction between "the functional constitution of technical objects and subjects, which I call the 'primary instrumentalization,' and another aspect, the 'secondary instrumentalization,' focused on the realization of the constituted objects and subjects in actual technical networks and devices" (202). He argues that essentialism only offers insight into the first dimension, while the dimension of "realization" encompasses actual uses of objects, the contexts of meaning in which they are embedded, and active interaction between subjects and objects.

While Feenberg's analytic distinctions are useful in clarifying some key aspects and dimensions of contemporary technology, I think that there are some conceptual limitations in his attempt to develop an overarching philosophy of technology that will define its common characteristics over a broad range of historical contexts. There are, in fact, various levels in which a critical theory of technology can be engaged. Feenberg's earlier books developed an approach that analyzed the role of technology within a specific historical epoch, modernity, and called for a critique and reconstruction of technology in the contemporary era. *Questioning Technology*, by contrast, has a more philosophical focus with some of the analysis pitched at the high level of philosophy of technology. Analysis on this level faces the danger of excessive abstraction and philosophical projection, in which categories that are perfectly appropriate to describe technology in one historical epoch are projected onto the broader historical narrative of humanity and generalized and universalized as invariant features of the human adventure.

Feenberg's analysis of primary and secondary instrumentalization raises for me problems with philosophical theories of technology that focus on developing universalist analyses of the nature and role of technology as such in human life. Shouldn't a critical theory of technology focus more specifically and in a historicist vein on analyzing technology in a particular epoch, with special emphasis on technology in the current era, rather than providing universal perspectives on technology? While his focus was more historicist in his previous books, the concluding optic of Feenberg's *Questioning Technology* has taken a philosophical turn that strives to develop a more universalist analysis of technology that will conceptualize its invariant features analysis. But in so doing, he illicitly smuggles in concepts from modernity into a more general philosophical analysis.

Thus, while there may be benefits and insights generated from a more sweeping philosophy of technology that detects continuities across the vast terrain of history as well as discontinuities between historical epochs, one must be very careful in delineating the commonalities, general features, or functions that cut across historical eras. Philosophical perspectives may illuminate the trajectories of historical development, articulate both continuities and differences and discontinuities across historical epochs, criticize specific types and uses of technology from the standpoint of alternatives, and call for democratic reconstruction of technology in the present as Feenberg so persistently and eloquently has militated for. Indeed, it is the merit of Feenberg's work to disclose the specific features of many types of contemporary technology, to show how technological design can be contested and reconstructed, and to advance a democratic theory of the reconstruction of technology rather than the celebrations or dirges that characterize so much contemporary discourse on technology.

But I doubt whether Feenberg's concept of "instrumentalization" and his distinction between primary and secondary instrumentalizations are the best categories to adequately characterize technology throughout history in all of its diverse configurations and constellations. First, it is not clear that the term "instrumentalization" is an appropriate concept to describe the nature and function of technology throughout history. Whereas an instrumental use of technology arguably characterizes modern societies, it may be that premodern societies had more ritualistic, aesthetic, religious, or social conceptions of technology. Moreover, I am not sure that the term "secondary instrumentalization" is the correct concept for the sort of substantive analysis of meanings, aesthetic and ethical qualities, democratizing reconstructions of technology, and uses that integrate technology into specific contexts that Feenberg wants to characterize in order to distinguish certain concrete uses of technology from the more instrumental conception of technology. Feenberg has argued convincingly in his earlier works that instrumentalism is often taken as the essence of technology by many reductive "instrumentalist" theories that he strongly critiques. The term "instrumentalization" indeed seems to me to be best reserved for the dominant concept of technology against which Feenberg wants to polemicize, maintaining a link with Lukàcs, critical theory, and other critics of instrumental rationality who theorize it as a distinctive feature of capitalist modernity against which a more substantive notion of rationality is opposed.

From this perspective, technology is much more than an instrument, a term that cannot capture the rich and broad range of elements that Feenberg wants to capture in concepts like integration (of technology into everyday life), realization (of values and aesthetic qualities), and democratization (of design, uses, reconstruction). Moreover, his distinction between primary and secondary instrumentalization concedes too much to the view which Feenberg opposes by suggesting that the "primary" dimension of technology is an instrumental or functionalist one, while all other features are merely "secondary" (thus replicating the problematic distinction between primary and secondary qualities in the history of philosophy). Feenberg could argue, I would suggest, that the instrumental and multidimensional qualities of technology are equiprimordial (to use a concept of Heidegger), that design and use, meaning and function, and construction and realization are equally important in the constitution of our actual experiences and uses of technology in our social life.

Furthermore, a distinction between instrumentalization and what Feenberg calls "democratic rationalization" (to replace his primary vs. secondary instrumentalization distinction) would allow all the discriminations that Feenberg wants, would continue the Frankfurt School critique of instrumental reason, and would provide a standpoint of critique to criticize not only other theories of technology, but uses that are purely instrumentalist, abstracting from environmental contexts, values, meanings, and democratization. This distinction would capture the distinction between an approach to technology that is instrumental, decontextualizing, reductive, autotonomizing, and determinist that Feenberg wants to distinguish from an approach that is contextualizing, mediating, multidimensional, reflexive, democratic and concrete -- and which count account for agency, values and meanings, and the actual richness of technology in everyday life that Feenberg wishes to valorize (see 203-208).

In fact, while Feenberg's project is to develop a critical theory of technology, it is not clear from

what standpoint of critique he is operating and how he would ground his critical perspectives. I would suggest that distinguishing between instrumental rationalization and a more democratic rationalization could provide aspects of a standpoint of critique that could be further developed in theoretical analysis and concrete studies.

Finally, while one might argue that Feenberg underestimates the power of technology as a force of domination and veers too far toward an overly sanguine stance, I believe that his more activist and optimistic perspectives are more productive than gloomier prognoses that only see technology as an instrument of domination. It is both useful and correct to see the social constructedness of technology and modernity and the importance of devising alternatives. Social transformation clearly requires reconstruction of technology and it is Feenberg's merit to demonstrate both that technology is a product of social design and construction and that transforming society to make it more democratic and responsive to human needs requires reconstructing technology.

### References

Feenberg, Andrew (1991) *Critical Theory of Technology*. New York: Oxford University Press.

\_\_\_\_\_ (1995) *Alternative Modernity*. Berkeley: University of California Press.