

In short, though there is some originality here with respect to the reworkings of old material – some going all the way back to Ihde’s first and second waves, but predominantly the third – it is doubtful that they offer much more than mere reworkings. Whether that – together with the five or six genuinely original essays – constitutes a new fourth wave or not, I would leave to readers of the book. The editors of the *New Waves in Philosophy* series clearly think so, but this member of Ihde’s third wave has his doubts.

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***Participatory Democracy, Science and Technology* by Karl Rogers (Palgrave MacMillan, 2008). 256 pp. ISBN: 978-0230522060.**

This book makes good on many of the promises made by Rogers’ previous work, *Modern Science and the Capriciousness of Nature*. How exactly ought people in a well functioning democracy interact with the strongest forces that shape their lives (science and technology)? Do we threaten the objectivity of science when we democratize it? What role do technical experts have in a democratic society? What does “democracy” mean? Rogers ambitiously attempts to answer all of these questions while simultaneously building a convincing case that the democratization of science and technology isn’t simply a good thing for democratic societies vis-à-vis the realization of democratic ideals, but is in fact a necessary component of “good” science and technology.

After a careful opening critique of technological determinism found in the substantivist theories of technology, (Heidegger, Marx, Marcuse, Ellul, Heilbron’s soft determinism, etc.) the third chapter pulls heavily from Feenberg to suggest a “dialectical” theory of technology. This, at its core, is an attempt to make sense of the dialectical nature of the relationship between technology and society (i.e., how technologies are shaped by human choices and how human choices are shaped by technology). This departs from (or perhaps supplements) Feenberg’s account by emphasizing an irresolvable ambiguity between what Feenberg calls the primary and secondary instrumentation of technology. This ambiguity arises out of the dialectical nature of technology, allowing Rogers to sweep away the last vestiges of determinism from the substantive theories of technology on which he is building.

Chapter four, on participatory democracy, is largely meant to explain how Feenberg’s call for “deep democratization” is supposed to play out. The author worries that without a full account of how “deep democratization” is understood, there is no clear path to move from a technocratic authoritarianism to a democratic technological society without remaining open to traditional

technocratic arguments or claims of impracticality or perhaps even the undesirability of overthrowing the current technocratic regime. Participatory Democracy is meant to be that path. Here, the author relies heavily on Benjamin Barber's notions of thick and thin democracy. Through thickening (increasing participation in) traditional (thin) liberal constitutionalist structures, a democratic citizenry may emerge out of technocratic authoritarianism without the need for violent revolution or over-reliance on an impractically motivated citizenry. This is because through thickening already existent thin democratic political structures it is possible to rely on liberal constitutionalist ideals during the transition, eventually replacing them with a fully functioning participatory democratic society. In this way, liberal constitutionalist values serve as a propaedeutic, as a ladder that, once used to climb up, may be thrown away. It is through participating in participatory democratic institutions that a citizenry capable of the kind of self reliance necessary for a well functioning participatory democratic society emerges.

Next, the author turns toward the question of scientific and technical expertise in a participatory democracy. It is here that the author makes good on the promissory note in the first chapter to defend the idea of democratic participation as a practically valuable thing in a technological society (rather than democracy being a moral good that trumps technical considerations). Via an appeal to Polanyi's understanding of the nature of science, the author argues for a relation between the form of technical work and the form of the wider society within which this work emerges; since scientists' intuitions at having correctly established a connection with an independent reality through theoretically understood material are themselves a manifestation of a more comprehensive societal gambit involved in constructing a technological society, the democratization of scientific research and technological development requires the democratization of the society at large. This means that science and technology will, in so far as they are a part of society, emerge as more democratic institutions that communicate bi-laterally with non-scientist members of the public. This, in conjunction with a brief rehearsal of Wynne's classic piece on sheep farmers in Cumbria amounts to the argument for the practicality of democratizing science and technology. This is an important way of making the technological infrastructure of regions and nations more sustainable, diverse, flexible and robust because they are better integrated into local social circumstances in which they are located. Excluding the public from technical or scientific decisions "simply leads to badly implemented and developed science." Thus, democratic structuration has practical value for the rational development and implementation of scientific research and technological innovation because it "increases the social capacity to intelligently and creatively adapt and respond to events in our messy, complicated, and capricious world."

The final chapter fleshes out this relationship between democracy and the "rational society." Drawing conspicuously on Habermas' notion of the ideal speech situation, the author notes that, because of the dialectical relationship between science and technology and society, at any given moment in history exactly what counts as "rational," what epistemological or moral standards, and what constitutes free and open deliberations can be in dispute. This creates a situation in which rationality itself is something that needs to be contested in a democratic forum. In the absence of a universal agreement on what constitutes good reasons for action the most "rational" thing to do is to place technical decisions into the democratic sphere so as to scrutinize them from as many perspectives as possible. A rational society will be one that uses science and technology in a way that conforms as much as possible to the desired structure of the lifeworld (i.e., a society in which people are empowered to shape how science and technology shape their material conditions). In this way, opening decisions, typically decided via instrumental rationality, to participatory democratic fora will ensure decisions adhere more closely to something that approximates a rational decision. In this way participatory democracy becomes "an ontological

condition for the maximization of the societal capacity for survival, creativity, experimentation, and freedom.”

The book is a most welcomed addition to the growing number of works in STS devoted to the intersections of democracy theory and science and technology. While this reviewer would have liked to see a more selective focus on particular forms of participatory democracy (i.e., deliberative democracy [the word deliberation is used no less than 39 times in the final chapter]), the book successfully does a lot of the heavy lifting of demonstrating the fertile areas in which science and technology may constructively interface with democratic theory while making both the science and the society better for it.

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Dorsality: Thinking Back through Technology and Politics (Posthumanities Series) by David Wills (University of Minnesota Press, 2008). 280 pp. ISBN: 978-0816653454.

David Wills’ *Dorsality: Thinking Back through Technology and Politics* begins with a neologism of sorts, a noun derived from an adjective referring to the backside of a body; under Wills’ novel spin, it also refers to the back of our thought. Regarding the former, the notion of dorsality serves to describe the constitution of a human body and, as such, humanity; regarding the latter, it is a standard philosophical practice of looking back or beyond and into the customary conditions of possibility of philosophy. *Dorsality* is not a book about the latest technological developments in metallurgy or biotechnology; rather, it is a philosophical treatise concerning the conceptual framework that governs our understanding of technology.

As spelled out by Plato and Aristotle, and interpreted by Heidegger, Derrida, and now Wills, *techne* means both art and craft – that is, both artistic creation and technological production. To fully grasp the meaning of technology, one must inquire into the nature of both. Moreover, following the thesis of his *Prosthesis*, which according to Wills, is to be seen as a “back-ground” for *Dorsality*, there is no pure, natural, non-prosthetic origin; instead, everything is always already infused by the artificial (245). The same applies to humans: there is no pristine, simple human that later creates technology; instead, moving the timeline of evolutionary biology by following the anthropologist Leroi-Gourhan, Wills asserts that technology is literally embedded in our upright stance which in turn frees our thought-creating brains and tool-making hands. Technology as production/creation by humans of something other than human, as a differentiating force, is, after all, not something other than human.

Dorsality is made up of a series of critical readings of sources ranging from Exodus and Homer to Rimbaud, Sade, Heidegger, and Derrida. Given his background in literary theory and practice in deconstruction, Wills mainly focuses on the Western literary and philosophical tradition. Wills’ method and style are decidedly deconstructive. Unlike his *Prosthesis*, *Dorsality* does not employ an elaborate personal autobiographical conceit and, as such, is more akin to his *Matchbook*. Thematically, it explores the areas of ethics, politics and sexuality. Wills references the standard bearers of continental philosophy and literary theory such as Blanchot, Barthes, Lyotard, Deleuze, Derrida, Nancy, and Lacoue-Labarthe, as well as the more recent, rising stars such as Giorgio Agamben and Bernard Stiegler. On a more personal note, one of the concepts developed – namely, that of “leaving” as “the originary moment of thinking (and desiring)” – is said to be