Book Reviews

Philosophy and Design From Engineering to Architecture **edited by Pieter E. Vermaas, Peter Kroes, Andrew Light, and Steven A. Moore (Springer, 2009). 362 pp. ISBN: 978-9048127337.**

Philosophy and Design is an anthology of very interesting papers focused loosely on philosophy and technological design. The strength and weakness of the volume are the same, the broad range of contributions. The papers are diverse and generally of high quality, though the volume does not have a strong coherence. According to the introduction, the volume was developed with the insight that the growing complexity of engineering design reduces the distinction between engineering and architecture and, hence, architecture's long tradition of consciously influencing human interaction and social organization through design could be used to illuminate engineering design. For the most part, however, the cross fertilization of fields is confined to the Introduction and Part III where it is often implicit. I confess that the parallels between technological design and architectural design were not what drew me to the book. I read the book to get a sense of where the field of philosophy and technology is now, and to find out what well-established and new scholars in the field are thinking. In this regard, the volume did not disappoint.

After the Introduction, *Philosophy and Design* consists of three parts: Engineering Design; Emerging Engineering Design; and Architectural Design. In order to do justice to the range of papers, I will take up each part separately.

Part I Engineering Design

Each of the papers in Part I addresses a question or concern loosely centered around the design of technology. The set begins with Franssen taking on one of the deepest philosophical questions – the metaphysical status of artifacts. He argues that what an artifact is or is for, is indeterminate, and he draws out the implications of this for role of designers. Houkes argues for a use-plan analysis ("design involves the construction and communication of a use-plan"). Ihde uses the intentional fallacy as a parallel for understanding the many interpretations of technology design. Although these papers are quite distinctive in approach, all three wrestle with the mismatch between the intentions of artifact designers and the way artifacts may be understood and used. Brey takes on evolutionary accounts of technological innovation and change. Van Gorp and van de Poel, and Verbeek focus on ethical issues in design; Van Gorp and van de Poel give an account of ethical issues in engineering design and Verbeek gives an account of values in technological design. Both of these papers are crisp and insightful statements of ideas the authors have elaborated before. Feng and Feenberg give an account of design that synthesizes social theory, science and technology studies, and critical theory. Their argument is that technologies are underdetermined and, therefore, there are opportunities for alternative perspectives in the design process. Part I concludes with a paper by Naoe on culture being inscribed in technology and Thompson's account of how alienability, rivalry and exclusion costs are values that get expressed in institutional design.

Part II Emerging Engineering Design

The papers in Part II are focused on the future – the kind of technologies likely to be developed and the engineering and design practices that could or should be used in the future. The papers grapple in quite different ways with how to think about and what to do about the technological future that is coming. Sullins' struggles with the role and nature of robots and how they will be

integrated into human activity, in particular given the potential for affective robotics. Rieder and Schafer argue that open source software shows that technological design will in the future not just be a product of engineers or the institutions of engineering; there will be "fluctuations in how technical artifacts are created". Nordmann argues that we may be witnessing a regression in the way technology is understood; he suggests that technology is being naturalized and might be thought of as being "as enchanted and perhaps frightening as nature used to be when humanity started the technological process of disenchantment and rationalization". These papers are followed by a cluster on redesigning humans (human enhancement). Cerqui and Warwick provide a techno-enthusiastic account the redesign of humans since they describe what might happen to humankind and how "bright the future might be." In stark contrast, Melo-Martin provides a more sophisticated, meta-analysis of genetic technology, pointing to the misunderstanding about knowledge creation in the current discussion and arguing for a better understanding that would help with the decisions humans will have to make about genetic enhancement. The cluster on human enhancement ends with Schmidt making some points about concepts that shape the question "should we redesign humans?" [One cannot help but wonder whether it was oversight or a political statement that led to the use of 'Man' in the title and within the paper.]

Part II ends with two papers on design methodology and two papers on responsibility. Miettinen uses design to examine systems methodology and systems engineering. In a paper that harks back to the discussion in Part I about the relationship between the artifact designers and artifacts, Krohs argues that artifact designs influence the design of a society but because societies are self-organizing, artifacts influence only to a minor degree. Neeley and Luegenbiehl focus on design as a discourse framework to be distinguished from the framework of technological development. They argue that the technological development framework brings with it the perception of inevitability while the design framework "enhances perceptions of choice and consequently, of individual responsibility." Cook, also concerned about responsible design, argues that we must distinguish between natural, artifactual and human systems, though the three are interdependent. At a time when we are critically dependent on artifactual systems, Cook argues, a blurring of the distinctions between these three types of systems undermines "effective and responsible design".

Part III Architectural Design

The six papers in Part III focus, in one way or another, on architecture. Three of the papers are by architects and three by philosophers. Davis sets the scene with an historical account of architecture emphasizing the split that took place in the 19th Century between designing and building. The paper concludes with a perspective on the current state of architectural practice. Moore and Webber focus on architects as experts who provide the public with a representation of reality – a representation that hides as well as reveals. The paper seeks to understand the consequences of architects making normative judgments that limit the range of choices others have. Cavanagh uses house construction as a case study. He seems to push against the purpose of the volume (i.e., to draw parallels between design contexts). Pitt elaborates earlier work on the criteria for successful design. Focusing on the Michael Graves complex in The Hague, he argues for what he characterizes as a common sense approach to design, an approach that draws on the insights of William James. Hanks responds to what he calls the crisis of cities in the U.S. He examines and evaluates two possible responses: New Urbanism and Civic Environmentalism. The book ends with a paper by Parsons in which he considers "the relationship between the aesthetic appreciation of the built environment and the aesthetic appreciation of the natural environment". Parsons argues that these two aesthetics should not be thought of as opposed; he argues for producing built environments that mirror nature but he has a complex notion of nature.

I was glad that I read the book and was heartened to see philosophers of technology engaged in such rich and substantive discourse, discourse that has real-world implications. I was left with the impression that the field is far from coalescing around any solid girders of understanding but perhaps that doesn't matter.

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***New Waves In Philosophy Of Technology*, edited by Jan Kyrre Berg Olsen, Evan Selinger, and Soren Riis (Palgrave Macmillan, 2009). 384 pp. ISBN: 978-0230220003.**

Don Ihde, in his foreword to this volume, classifies the authors collected here as representing a fourth wave – the new wave – among philosophers focusing on technology, technologies, and technological culture. Ihde includes himself and myself among the third-wave philosophers, and it may not have been wise on the part of the editors of *Techne* to have invited me to comment on our next-wave successors. Presumably each wave has added, or claims to have added, something both new and different – and, one would hope, better – to the contributions of its predecessors. In doing such comparative measurements, I once, here in the pages of the predecessor version of SPT´s *Techne* (whole volume 4), summarized the types of measures typically used. Some contributions to the literature are said to be "quantitatively" better: like advances in scientific fields, what is said to be better is supposed to build explicitly on prior knowledge. Other alleged improvements are merely "qualitative": they offer allegedly better *value* judgments, better *syntheses* of prior work, or, finally, only more *originality*. What, in these terms, can be said about the work of the "new wave" philosophers collected in this volume? I run through them one by one.

Keekok Lee, "*Homo faber*: The Unity of the History and Philosophy of Technology." Lee has actually been around long enough to have joined those of us in Ihde´s third wave, though it is true that she was not prominent among philosophers of technology in our era. In this essay, she argues that – although so many changes have taken place in the history of western philosophy since the Greeks that it seems unlikely that technology, in all its forms from primitive to contemporary, could be understood within a single philosophical framework – there is a common thread in the notion of *Homo faber*. Unfortunately, to my eyes, her survey is so sweeping that it might well have been written during Ihde´s first wave.

Jan Kyrre Berg Olsen, "Becoming through Technology." This is actually an essay on science, not technology, though it does pay some attention to the technologies of time measurement. To me, it reads like a reworking of a running conflict between Milic Capek and Adolf Grunbaum as far back as the 1960s. Berg Olsen puts a novel twist on the argument. But I can´t help remembering how, when Capek retired to our philosophy department at the University of Delaware and, kind person that he was as a colleague, he wondered why I would have turned from philosophy of science (good) to philosophy of technology (at best questionable). I´m sure he would have the same doubts about Berg Olsen, at least in this essay.

Robert Rosenberger, "Quick-Freezing Philosophy: An Analysis of Imaging Technologies in Neuroscience." This is an interesting – while difficult for anyone not familiar with the neuroscience literature discussed – application of Ihde´s "postphenomenology" type of analysis to a case study in a specialized subfield of neuroscience, the nature of synaptic vesicles in

neurotransmission. A good technoscience case study, building on a third-wave predecessor in philosophy of technology.

David M. Kaplan, "How to Read Technology Critically." Kaplan has also been around for awhile, but this is a genuinely novel approach, though it relies principally on the thought of Paul Ricoeur, and Kaplan admits that Ricoeur has actually contributed little to the philosophy of technology. Ricoeur as here interpreted by Kaplan should contribute a great deal to the "fourth wave."

Graham Harman, "The McLuhans and Metaphysics." This is an original replay of Marshall and Eric McLuhan´s use of the tetrad (defined as a "fourfold") as an analytical structure in all fields, with special reference to the elder McLuhan´s "understanding media." It is largely based on *Laws of Media* (1988), in which the younger McLuhan tried to breathe new life into his father´s ideas, then in something of a decline not only among the third-wave philosophers of technology but generally. The essay, in my opinion, is decidedly original, as well as refreshingly comprehensive.

Soren Riis, "The Question Concerning Thinking"; and Iain Thomson, "Understanding Technology Ontotheologically, or: The Danger and the Promise of Heidegger, an American Perspective." Ihde refers to these essays as dealing with the specter or ghost of Heidegger that is still found wandering through the fourth wave. I would leave it to Robert Scharff, the leading Heideggerian of the third wave (leaving aside Ihde´s post-heideggerianism), to say whether or not there is even anything really original in these two essays.

Nick Bostrom, "The Future of Humanity," and Philip Brey, "Human Enhancement and Personal Identity." This paired set of essays, oddly inverted in order, reflect Bostrom´s posthumanism and Brey´s critical assessment of it. Brey actually goes out of his way to be fair to Bostrom (and his fellow posthumanists) in a long essay, saving his devastating "ethical considerations" for just the last couple of pages. There Brey argues that, "Even if new inequalities could somehow be prevented, which seems unlikely, the question would remain whether human enhancement would really improve human lives"(p. 182). Incidentally, Bostrom has been around a good while, and even contributed to an SPT meeting in 1997.

Benjamin Hale, "Technology, the Environment and the Moral Considerability of Artefacts." In this complex and difficult essay, Hale begins by recognizing three versions of a "pragmatic turn" in environmental ethics: to Peirce, James, Dewey and the American Pragmatists; to the Frankfurt school of neo-Marxists, including Marcuse and Adorno; and to "discourse theorists," where he lists Apel and Habermas, as well as himself. A good third of the essay is then devoted to Habermasian theorizing, before Hale turns to his curiously abstract argument (in an essay supposedly devoted to a "pragmatic turn") about the *lack* of "moral considerability" of artifacts in relation to environmental philosophy.

I pause here to make a point about Habermas and Ihde´s "third wave" in his foreword. Habermas, for some reason, always held back from any relationship to the Society for Philosophy and Technology (the home of this journal); and in all of this "new wave" book there are precious few references to anyone in the "third wave" except Ihde himself. Even Andrew Feenberg, an offshoot of the Frankfurt school (like Habermas himself) is rarely mentioned; and the same is true for recent proponents of Dewey as a philosopher of technology, or "technical" philosophers of technology such as Kristin Shrader-Frechette or Joe Pitt, or even Mario Bunge, who has a wide following among some European philosophers of technology. Whatever shortcomings these authors find in the "third wave" (I will get to an explicit claim, by Evan Selinger, in a moment), they seem to be shortcomings of Ihde himself and other phenomenological philosophers of

technology. (I don´t mean to say that Selinger´s critique is not valid – as I will show when I get to him.)

Peter-Paul Verbeek, "Cultivating Humanity: Towards a Non-Humanist Ethics of Technology." Verbeek´s approach is explicitly "postphenomenological," consciously building on Ihde´s approach. But "non-humanism" in the essay also owes a good deal to the Bruno Latour of *We Have Never Been Modern* (1993). Verbeek´s very cautious conclusion is this: "Only by approaching the human as more-than-human does it become possible to adequately give shape to the respect for humanity the humanist tradition has rightly been defending for so long" (final sentence). Along the way, Verbeek uses the technology of antenatal ultrasound as the basis of his argument, rejects both Heidegger and anti-Heideggerians, and falls back on pre-modern virtue ethics as better than "modernism´s" favored duo of deontology and consequentialism. (I should add that Verbeek´s book, *What Things Do*, 2005, does constitute an advance over Ihde, a "new wave" in that sense.) Finally we come to the two essays in the volume that, in my opinion, best deserve the "new wave" label:

Evan Selinger, "Technology Transfer and Globalization: A New Wave for Philosophy of Technology?" Selinger begins with what are to me non-controvertible historical facts, that the Society for Philosophy and Technology was tardy in facing the globalization issue (the theme of its biennial conference only as late as 2007) and that such treatments of globalization as there have been among philosophers, not all of them self-consciously philosophers of technology, have been woefully abstract and have reflected a Western bias. To counter this, Selinger focuses, in this multiply nuanced essay, on a concrete case, "village phones," a "gift" of Grameen Banks primarily to women in rural Bangladesh. The result is an admirable case study, in the tradition of Science and Technology Studies, that both tries to eliminate Western bias *and* critiques non-Western critiques, on the ground in Bangladesh, of this technological development. It´s about time, I would say, for such a melding of the STS case study approach with philosophy of technology. More traditional philosophers of technology of Ihde´s "third wave" have done case studies, but not with Selinger´s attention to concrete practice in a non-Western setting. This essay alone is almost worth the price of the book, and an equally good one follows.

Casper Bruun Jensen and Christopher Gad, "Philosophy of Technology as Empirical Philosophy: Comparing Technological Scales in Practice." What these Danish authors mean by "empirical philosophy" is a use by philosophers of anthropological-style approaches (they give due credit to Harold Garfinkel, *Studies in Ethnomethodology*, 1967; and Barney Glaser and Anselm Strauss, *Discovery of Grounded Theory: Strategies of Qualitative Research,* also 1967) in order to deal with concrete case studies. Their examples are the introduction of "bush pumps" in Zimbabwe (Annemarie Mol and Marianne de Laet) and "fishery inspection" on the vessel *Vestkysten* (*West Coast*; one of the two authors, Gad, did fieldwork on the ship in 2006 and 2007), though they also refer at length to Marilyn Strathern´s "Enabling Identity? Biology, Choice and the New Reproductive Technologies" (1996) as well as to other concrete STS-type studies. Their conclusion, which makes empirical philosophy reflect the approach of the Social Construction of Technology (see Wiebe Bijker and John Law, eds., *Shaping Technology/Building Society,* 1992), is this: "Empirical philosophy assumes that we are often faced with technological situations of ambivalence, danger and possibility, in which indigenous and academic forms of action, value and conceptualization are associated and often at stake." And their last word is this: "In such cases we believe that this analytical mode offers a viable and interesting point of entry for a nuanced engagement with pressing technological matters of concern." To which I say Amen.

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, Barthers, Lyotard, Deleuze, Derrida, Nancy, and Lacou-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

owed to Branka Arsić to whom, it may be inferred from a reference to the first name in the dedication, the book is dedicated (251).

Dorsality is "framed" by black and white reproductions of art works that precede epigraphs. The works range from Salvador Dalí and Frida Kahlo to Bill Viola, and even include a photograph of Emily Dickinson's tombstone by Wills himself. The common theme among most of these seem to be women and (fragmented, disintegrating) bodies.

"The Dorsal Turn" serves as an introduction of both the notion of dorsality and the rest of the book. In the "Facades of the Other: Heidegger, Althusser, Levinas," in addition to discussing Althusser's analysis, via the notion of interpellation, of the constitution of the political subject in "Ideology and Ideological State Apparatuses" and Levinas' notion of ethical relation, Wills offers a reading of a number of Heidegger's texts with a focus on "The Question concerning Technology." Through the analysis of Heidegger's shifts, turns and step-backs, Wills attempts to recover Heidegger's rejection of technology.

"No One Home: Homer, Joyce, Broch" describes the odyssey of "polytropic" and "polytechnic Odysseus" by developing the concept of "originary exile" or "technotropological departure." Departing from one end of Western literary history, the chapter arrives at the other by the examination of Joyce's *Ulysses* and Broch's *Death of Virgil*. Along the way, Wills asks: "What if, 'before' any act of creation or procreation, before any domestication via the womb or the earth, before any Earth Mother or Uranus, any Rangi or Papa, any Zeus or Hera, there were only the fiction of the same? What if the origin could only ever be conceived (of) in the form of such a construction, if the originary home were a possibility of a concept, a technotropological hypo-prosthesis that is the opening to inventing, to thinking and to fiction?" (82). In a similar fashion, "A Line Drawn in the Ocean: Exodus, Freud, Rimbaud" looks further into the formation of national identity, this time by means of, literally speaking, oceanographic exploration – that is, by describing the rhetorical force of the ocean in Exodus, Freud and Rimbaud.

"Friendship in Torsion: Schmitt, Derrida" examines the possibility of unnatural (technological, prosthetic) friendship as developed by Wills' "sorely missed" friend Derrida in his analysis of Schmitt in *The Politics of Friendship*. "Revolutions in the Darkroom: Balász, Benjamin, Sade" is an essay in aesthetics that takes a penetrating look at dorsal sexuality via a series of reversals (theory/practice, aesthetic/political, nature/technological artifice) cinematically developing in Sade's darkrooms. Moving from perversion to controversion, the final chapter, "The Controversy of Dissidence: Nietzsche," examines Nietzsche's deicide and concludes that: "Henceforth, whichever way we walk, we are all on Nietzsche's path" (243).

Effectively demonstrating Wills' dexterity and the breadth and scope of his interest, *Dorsality* is an excellent book. It is an essential reading for those practicing continental philosophy, aesthetics or literary theory. It could be an interesting read for those interested in philosophy in general or those engaged in broad, definitional aspects of technology studies.

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***Engines of the Imagination: Renaissance Culture and the Rise of the Machine*, by Jonathan Sawday (Routledge, 2007). 424 pp. ISBN: 978-0415350611 (hbk), 978-04153562x (pbk), 978-0203696158 (ebk).**

This book is a rich source of information on an insufficiently researched topic. However, the philosopher of technology will have to use Sawday's material to make his or her own generalizations and interpretations.

The author surveys a vast amount of renaissance literature touching on technology. Research on technology and the humanities has concentrated primarily on the late seventeenth century and after. Second in coverage is medieval technology and culture, on which figures such as Lynn White and Jean Gimpel and their followers have written. However, the renaissance has been a relatively neglected area in the field of technology and literary culture. Sawday's work is extremely valuable for covering this area. However a great many of the sources he uses are from the mid-seventeenth century, on the border between the Northern Renaissance and the Age of Reason. Although the author seems, from his earlier works, to be most familiar with this period, it would have been desirable, given the theme and title of the work, to focus more on the Italian Renaissance of the fifteenth century and the Northern Renaissance of the sixteenth and very early seventeenth century.

Sawday has surveyed a huge amount of literature and culled references to technology.Some of the topics he covers are Montaigne's positive references to technology in his diary, which contrast with the negative attitude toward new technology in his essays; the religious and political symbolism of the moving of the immense obelisk on the Pope's orders in Rome; the role of the clock and of printing (covered briefly here, and among the few topics in renaissance technology and general culture that have been extensively covered by others): the writings of Agricola and Ramelli: Women and spinning as it appears in art of the renaissance; Bacon and Hooke on machines: Milton and the engine; and Andrew Marvell and Shakespeare on the natural and the mechanical. One of the intriguing aspects of this literature, one that the author emphasizes, is the fact that much of the technology that the literary figures discuss was seen as surprising and totally novel in a way that is hard for us to apprehend.

Sawday supplies numerous quotations from original sources in literature, and discusses, to a lesser extent, painters such as Valasquez and Bruegel. The author also shows familiarity with quite a bit of secondary literature, including theorists such as Lewis Mumford and Marshall McLuhan, more recent writers on philosophy and history of technology such as Langdon Winner, David Landes, David Noble, and Thomas Hughes, and historians of science such as Paula Findlen, Charles Webster, and Jan Golinski. Despite the broad framework of interpretive sources used, the work is seemingly lacking in strong overarching themes or sharply formulated conclusions.

Another limitation, aside from the extensive treatment of Montaigne and references to Leonardo, Agrippa, Alberti, and others, is that the work culls its material primarily from English sources. There is, of course, a vast literature on Leonardo's inventions and speculations, and an extensive one on Alberti and Italian renaissance architecture. Thus Sawday's work on Montaigne and Milton is original and welcome. However, as a survey of technology in the renaissance in general, the work, extensive as it is, is incomplete.

At times the author draws comparisons to later issues and themes such as Leo Marx's classical investigation of themes of machinery and nature in American literature. There are references to recent and contemporary events, such as the attempt to erase the past and return to an agricultural utopia in Pol Pot's Cambodia, Silvio Berlusconi's speech against Islam, and Paul Roberts on the

"end of oil." However, I did not find these references to later issues and problems to be sufficiently systematically, or continuously developed and linked to the theses of the work.

There are several interpreters of renaissance technology in relation to the general culture whom Sawday does not utilize, despite the immense range of reference he deploys. One is Roger D. Masters' *Fortune is a River*, which discusses evidence for a collaboration between Machievelli and Leonardo in canal building. Sawday mentions the collaboration in a footnote, but cites only a source that briefly casts doubt on its reality. Masters' work is very suggestive on the relations between notions of physical and political power in renaissance thought. Another is Paolo Rossi's *Technology and the Arts in the Early Modern Era.* The works of Edgar Zilsel, from which I suspect a major theme of Rossi's is taken, concern the social crisis that threw together partially literate technologists and experts in the crafts with literary and learned humanists lacking in practical technical knowledge. Two other figures that have interpreted the relation between the broader renaissance society and economy and the mechanical approach to nature are Franz Borkenau and Henryk Grossman. Zilsel, Borkenau and Grossman are all non-orthodox Marxists. Sawday does make a number of references to Marx, but not to twentieth century Marxists who discussed renaissance technology. The three just mentioned also wrote primarily in German, and Sawday's primary focus in terms of secondary sources is English. Borkenau elaborates on Marx's claim that Descartes saw the world through the eyes of manufacture. Grossman criticizes Borkenau (and is used by writers such as E. J. Dijksterhuis and to criticize Marxism in general), but develops a much more nuanced and historically accurate (in terms of time sequences of developments) case about the relation of the capitalist economy to the mechanical view of the world.

The conclusion of the book characterizes the book's theme as one of the natural and the artificial. However, I found the book to be more of a collection of separate essays than a continuously developed argument. This is not a major criticism, given the valuable material that the author surveys and presents. Nevertheless, the philosopher of technology will need to mine the book for examples to be interpreted, not for a major connecting theme or striking thesis.

I recommend this book as a treasure trove of fascinating quotations from English writers concerning technology. However, the issue of in what respects renaissance writings concerning technology differed from those in the Middle Ages and Enlightenment still needs to be developed.

Val Dusek

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Pragmatism as Post-postmodernism: Lessons from John Dewey **by Larry A. Hickman (Fordham University Press, 2007). 284 pp. ISBN: 978-0823228423.**

As a specialist in John Dewey studies, Larry A. Hickman has made and continues to make contributions to the development of Dewey's philosophy. This new collection of papers from

more than three decades of work is his latest approach defending and extending Dewey's classical pragmatism. As Hickman writes, his aim is to "extend the reach of John Dewey's insights into areas where they have so far had little or no recognition" (p. vii). In the pragmatist tradition, Hickman's concern is especially to help people everywhere promote their intelligent resources and practical capacities to solve social problems. Pragmatism here is the classical philosophical program that derives from Charles Pierce, John Dewey, and William James. For Hickman, productivity is central to this pragmatism, and thus the book works to "produce" creative artifacts for communities and not simply to think as an end in itself. In light of such an understanding, Hickman denominates Dewey's position as *productive pragmatism*. From the perspective of productive pragmatism technology is understood as "a natural activity of human beings, a part of their attempt to secure transitory goods and improve the conditions of their lives, both as individuals and groups" (p. 84). Like all productive human activities, it uses what Dewey calls the method of inquiry to seek and secure goods. The discussions in this book - on broadly overlapping topics such as postmodernism, neomodernism, globalization, and environment - all provide further examples of this method. The conscious reader will thus find the book's structure to be philosophical and even pragmatic. The technical route is to start from "theories" looked at as "practices" in relation to technology and its context. Afterward, using these reflections, argumentation moves back to theories again in order to advance classical pragmatism. Early in this book, Hickman locates productive pragmatism in the contemporary history of philosophy by comparisons with postmodernism and neopragmatism. Before the terminology of postmodernism was invented, classical pragmatism had already taken an antifoundationalist and deflationary attitude toward traditional metaphysics. However, Hickman's approach here is not simply to "postmodernize" pragmatism, but to make a distinctive philosophical argument that unlike highbrow postmodernism, Dewey and classical pragmatism provide "a theory of experimental inquiry that takes its point of departure from real, felt existential affairs" (p.29), in opposition to postmodernist cognitive relativism emphasizing difference, discontinuity and incommensurability. This is why Dewey's pragmatism can be called "post-postmodernism".Classical pragmatism, Hickman argues, also offers significant advantages over some currently popular versions of neopragmatism. For instance, Richard Rorty's neopragmatism blurs the distinctions between arts and technosciences and attempts to displace classical pragmatism's thick program of active experimental reconstruction with thinner projects that present hoping and coping as the best available paths to progress. By contrast, Dewey's classical pragmatism honors the distinctive roles of the arts and technosciences and emphasizes their objective results over subjective attitudes we might take toward them. Dewey is thus more able to mobilize the pragmatic enthusiasm for engaging and solving social problems, especially those characteristic of technological culture. Here, Hickman is in agreement with other interpreters such as Junichi Murata, an active Japanese pragmatist who maintains that the Deweyan contribution to the ethics of technology is to solve sociotechnical problems by means of creative long-term technology assessment. After presenting his vision of pragmatism as post-postmodernism, Hickman thus turns to consider the specific advantages of Dewey's viewpoint for intractable issues of technology and environment.

Hickman is one of the earliest pragmatists to reconsider Dewey as primarily a philosopher of technology. Especially in *John Dewey's Pragmatic Technology* (1990) and *Philosophical Tools for Technological Culture* (2001), he has used a Deweyan approach to create theoretical and practical resources for disciplines such as the philosophy of technology and technology studies.Among three other social-critical philosophers of technology with whom he has entered into dialogue in these previous and the current book — Jürgen Habermas, Andrew Feenberg, and Albert Borgmann — Hickman argues that Feenberg's social-critical theory of technology is closest to Dewey. Hickman commends Feenberg for moving away from his teacher, Herbert

Marcuse, toward the critique of technology advanced by Dewey. From a pragmatist perspective, Harbermas and Borgmann are more deficient. Habermas places too much weight on the noninstrumental side of the unstable dualism of strategic action versus communicative action, and lacks an adjustive historicist perspective on human situations. Borgmann's device paradigm is too broad and seems to deprive humans of creative uses of technology.

Hickman argues that where technology fails, the problem is ourselves. It is our lack of ability to invent new tools and to criticize our own highly cherished values. Hence, Dewey's critique of technology in Hickman's narrative calls for "naturalizing" technology, locating it in a realm that is neither supernatural nor extranatural and in which the only telic elements are the natural ends of objects, individuals, and events, all of which in turn may become means to further ends. This leads directly to Hickman's treatment of environmentalism as a related practical theme amenable to a Deweyan perspective. In this section, Hickman compares Dewey's environmental naturalism with that of Aldo Leopold and some other green pragmatists. Dewey would accept much of their work in environmental philosophy, but his naturalism would not accept the idealized, nonhuman nature, or mystic ideals sometimes encountered in Leopold and others. Evolutionary naturalism is Dewey's main theoretical framework in all his reflections on the human world. In the last part of book, Hickman tries to encapsulate the central concepts in Dewey's classical pragmatism. These ideas include the theory of inquiry (what Dewey called "epistemology industry"), warranted assertibility, habits as artifacts and productive pragmatism (Hickman's key term). Instrumentalism and experimentalism are two highlighted methodologies. But this part also tries to think through classical pragmatism from a higher level, elaborating on earlier descriptions of classical pragmatism as a post-postmodernism. Although contextualist, productive pragmatism also promotes the creative invention of new "tools" to solve problems in different situations. Its experimentalist inquiry produces new artifacts, including new habits, making it more active than either postmodernism or neopragmatism. For scholars in philosophy of technology and other technology studies disciplines, this book offers two main contributions: First, compared with other books on pragmatist philosophy of technology, it presents a more theoretical and systematic account of Dewey's pragmatism. Second, the volume is an intelligent resource for philosophy and technology studies. More specifically, in problematical sociotechnical culture, it actually helps produce creative artifacts in the forms of tools to address social problems. In sum, Hickman's most prominent achievement is to present classical pragmatism as a creative philosophy of production.

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