

THINKING ABOUT *THINKING ABOUT TECHNOLOGY*

Paul B. Thompson,
Purdue University

Joseph C. Pitt has been arguing for the priority of epistemology over social criticism in the philosophy of technology ever since I first met him in the late 70s. With *Thinking about Technology: Foundations of the Philosophy of Technology* (2000) he has given us a more complete statement of what this means. Pitt's epistemology is thoroughly pragmatist, characterizing knowledge as always occurring in response to a particular problem. Pitt's pragmatist epistemology draws heavily on the work of Wilfrid Sellars. (He is Joe Pitt in more ways than one.) Like Peirce or Dewey, Sellars gives us a way to understand science and knowledge that is sensitive to context without succumbing to the forms of relativism that appear to run rampant in some quarters of postmodern thought. This has made Pitt a staunch enemy not only of Heideggerians, but also of social constructivists such as Bloor, Bijker or Latour. Here, I would like to review both his pragmatism and its implications for the social critique of technology.

PITT'S PRAGMATISM

As a pragmatist, Pitt wants to validate and utilize results from the social studies of science. This work has given us a philosophically significant way to interpret the meanings of scientific terms as social phenomena. But as a pragmatist he is also a thoroughgoing naturalist (he calls his view "Sicilian realism"), and he does not endorse the implicit ontology that treats atoms and protons (or stars and planets, and presumably bicycles, bakelite and mass transit systems as well) merely as social phenomena. Pragmatic philosophy of technology provides a way to navigate between absolutism and relativism by showing how the referents of terminology are fixed by the practices (that is, the technology) of observation, measurement and experimentation that are in use at a given time and place. Pitt's sophisticated discussions of actual technologies, the problems that they were supposed to solve (often by producing knowledge) and the problems they created provides a much richer and more robust illustration of pragmatist epistemology than anything we find in Peirce, Dewey or Sellars.

Pitt emphasizes "technical explanations," which address one of three general questions: Why does it work? Why doesn't it work? and What went wrong? Philosophy of technology addresses each of these questions as

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components of design. Pitt wisely includes the social elements of technological support systems in his conception of design, illustrating how failures in technological organization led to the failure of the Hubble space telescope. While I am in general agreement with Pitt's emphasis on the epistemology of technology, the theory developed in *Thinking about Technology* is narrowly focused on engineering and on breakthrough technologies. As such it fails to serve as a comprehensive foundation for the philosophy of technology. It is not clear, for example, that the systematic observation and selection of natural variation that is used in plant breeding or drug development is a form of design, yet there is certainly a technical epistemology at work in these practices.

Pitt's theory is not only supposed to give us a new and better account of the relationship between science and technology (which it does), it is alleged to provide a new and better foundation for the critique and evaluation of specific technologies and technological systems. But Pitt seems to think of this latter question almost exclusively in terms of breakdown or unanticipated consequences of the technology in question. My own research has examined the changes in farm size and tenure patterns in rural communities over a period of 400 years. It is clear that technological change plays a key role in this transition, but the technology in question generally works the way it was intended, and is often not technically complex. Historian E. P. Thompson's analysis of how transportation technology led to the dissolution of community ties in rural English villages during the seventeenth century is a particularly rich and succinct case study, and I will draw on it below. In our own time, Amish farmers have developed sophisticated criteria regarding which technologies to adopt and which to reject in order to preserve the integrity of their communities. There is, I think, an epistemic account implicit within E. P. Thompson's social history and Amish critical social practice, but I am unclear as to how Pitt's thoughts on technical explanation help us ferret it out.

Pitt uses illustrations drawn from his lifelong work on Galileo to support his analysis of the links between technical and scientific explanation, but the sections of the book that address normative issues consist almost entirely of attacks on Pitt's enemies. More often than not these enemies are nameless. Pitt caricatures and debunks positions that may actually be held by people such as Martin Heidegger, Jacques Ellul, Langdon Winner, or Jeremy Rifkin (four authors who *are* mentioned in *Thinking about Technology*), not to mention Hans Jonas, Carl Mitcham, Albert Borgmann, Richard Sclove, Neil Postman, Ivan Illich, Murray Bookchin, Ulrich Beck, Kristin Shrader-Frechette and many more

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critics who have called the notion of technological progress into question, but whose work does not get any direct notice from Pitt. This means that *Thinking about Technology* has potentially far reaching implications for philosophy of technology. While Pitt's arguments against the caricatured positions are certainly correct, I do not think that the epistemic approach will carry the day against real opponents until it has been developed well beyond what Pitt offers in this book.

Pitt's generic critique boils down to two claims. First, social critics are mistaken to think that there is such a thing as technology, as distinct from specific technologies, which could be the proper object of a social critique. Second, the social critics of technology are using fear and frustration to peddle ideology, rather than making a well thought out assessment of specific technologies that could be used in actually reforming or modifying our practices. One failing in Pitt's analysis is that he does not acknowledge the logical independence of these two claims. Clearly, if the reification of technology is necessarily obscurantist, it is a rhetorical strategy that could be used by ideologues; but is there a tighter, perhaps even a conceptual link between these two errors? If so, this is something that pragmatist epistemology should expose.

As a pragmatist myself, I cannot disagree with Pitt's claim that regarding technology as a "thing" or as having an essence is likely to be very misleading. Yet it is not clear to me that hypostatization (to use Dewey's term) is a major problem in the philosophy of technology, and Pitt also needs to be clear about how it links up with ideology. It *is* clear that the notion of a world gone wrong is prevalent in much writing on technology. I have noted (though Pitt does not) how Ellul's treatment of technology echoes the Christian framing of humanity's predicament in terms of original sin and the fall from grace (Thompson, 1982). A similar observation could be made about everyone mentioned in the preceding paragraph. Yet it would be ludicrous to suggest that any of these figures is peddling some form of Christian ideology when they explore the "world gone wrong" scenario call it *WGW* though some are devout Christians. In fact, I would argue that there are at least two distinct strands of *WGW* as it relates to the philosophy of technology, and that neither commits the first of the two errors that Pitt notes in an important way.

THE WORLD GONE WRONG, PART 1

The first *WGW* scenario is Heideggerian. While Pitt certainly characterizes the line of argument in *The Question Concerning Technology* accurately, his reading of Heidegger's essay neglects the way in which anything

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from Heidegger's later period must be read as a work with both poetic and philosophical intentions. The poetic goal is to use language to lay bare, open up and recreate an instance of thinking. Much as a poem is least of all a record of facts and claims, Heidegger's later texts are propaedeutics for a certain cognitive experience. The reader must think the text, rather than simply read or interpret its claims. The philosophical goal is to bring about this constitutive act of thinking in a reflexive manner, a manner that reveals something about thinking in the very act that is constitutive of it. In *The Question Concerning Technology*, the hypothesis is that there is something about modern technology that impedes thinking, that induces forgetting. What is it?

As is well known, Heidegger believed that Western metaphysics began its peculiar history with the mistaken urge to parse immediate experience into subject and object poles. He explored and developed this theme in various and sundry ways throughout his life. One dimension (in my view, a persistent one) is Kierkegaardian:

[F]inally it became clear to me that the misdirection of speculative philosophy, . . . could not be anything accidental, but must be rooted in the entire tendency of our age. It must, in short, doubtless be rooted in the fact that on account of our vastly increased knowledge, men had forgotten what it means to EXIST, and what INWARDNESS signifies (Kierkegaard, 1941, p. 216).

The existing individual becomes concrete in his experience, and in going on he still has his experience with him, and may in each moment be threatened with the loss of it; he has it with him not as something he has in his pocket, but his having it constitutes a definite something by which he himself is specifically determined, so that by losing it he loses his own specific determination (Kierkegaard, 1941, p. 437).

In *Being and Time*, Heidegger is addressing questions of existence in a recognizably Kierkegaardian way. By the time he wrote *The Question Concerning Technology*, the emphasis has shifted almost entirely to the relationship between what Kierkegaard calls "the tendency of our age" and loss (by forgetting) of what Kierkegaard called the specific determination of existence. Heidegger reconstructed this as a relationship between modern technology and concealment. For Kierkegaard, the problem of existence consists

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in the need to constantly repeat the constitutive moment of becoming in the experience of the aesthetic, the ethical or the religious. For Heidegger, the imperative for philosophy is simply to think, but while the later Heidegger discards much of Keirkegaard's existential language, the parallel is still profound. For both, philosophy teaches precisely how difficult this fundamental constitutive task can be.

Heidegger's essay highlights the dominance of attending to efficient causes in a world given over to the technological satisfaction of needs. What is forgotten in this world? Many things are forgotten, but most of all the constitutive role of thinking itself. In the world of modern technology, thinking itself is experienced solely as an efficient means to the solution of problems. This is a critique to which pragmatists should pay special heed, yet Pitt does not respond. Instead he simply dismisses Heidegger for talking about the essence of technology. If Heidegger had been attempting to characterize the essence of technology as part of a hierarchy of knowledge, a Great Chain of Being, or to put it into a pigeonhole in an ontological list of that which is, Pitt's critique would be well founded. But Heidegger's use of the term "essence" could as easily be translated pragmatically as "what is most important and problematic, what calls for thinking when it comes to technology."

This is not, to be sure, necessarily of much help when it comes to the unintended social, ecological or psychological consequences of specific technologies such as nuclear power, computers, television or biotechnology. Extending the Heideggerian *WGW* scenario to specific technologies requires careful discussion of how specific technologies affect daily life experience. Albert Borgmann has done this in *Technology and the Character of Contemporary Life* (1984) and in *Holding onto Reality* (1999), and David Strong, in *Crazy Mountains* (1995), has argued that a society of people with such impoverished life experiences cannot hope to address environmental challenges responsibly. I would offer both Borgmann and Strong as practitioners of pragmatist existential epistemology. But since Pitt neglects this thread in the philosophy of technology entirely, he cannot, in my view, be said to have successfully brought pragmatist epistemology into engagement with the most interesting or promising strands in Heideggerian philosophy of technology.

THE WORLD GONE WRONG, PART 2

Borgmann and Strong are keenly aware that they have taken a normative stance, and that within a democracy those with a different normative stance have

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as much right to influence the political process as they do. To the extent that they address this problem, they do so in terms of the second *WGW* scenario, which highlights the impact of specific technologies on the formation and maintenance of community. Langdon Winner's work on this second *WGW* scenario is most relevant to Pitt. Winner is clearly taken by Heidegger, and went to wax Heideggerian when lamenting the existential and experiential crisis of us late moderns. But Heidegger is not really all that critical for his most important work on the philosophy of technology. Indeed, Winner's *Autonomous Technology* (1977) a book Pitt does not discuss rather nicely lays out the difference between various ways of seeing technology as "out of control." Winner links the loss of community to Marx rather than Heidegger. The argument here is purely economic and pertains to the way that specific technologies affect the costs and capabilities of doing one thing to make a living, rather than another. It does not impute any mysterious causal, metaphysical or spiritual powers to technology, nor does it depend on a reification or hypostatization of technology writ large.

The best way to make the point in a short space is to follow out E. P. Thompson's transportation example a bit. Once upon a time, English villages were close-knit communities in which each person had definite role responsibilities: farmer, miller, baker, etc. Each person was entitled to derive a particular share of subsistence from the entire village output. When crops were poor or the grain too moist, all suffered proportionately (if not equally), and all prospered proportionately when times were good. One feature of this moral economy (Thompson's term) was that villagers believed themselves to be entitled to a share of the bread that would eventually be made from the surrounding fields. There was no need to specifically articulate this entitlement as a moral or political right. The possibility of doing anything else had never come up; it was technologically infeasible. However, with better roads and better wagons, farmers and landowners could take grain to other villages seeking a better price (Thompson, 1993).

Thus arises a conflict of rights. If villagers have the right to a share of grain from the local fields, then farmers cannot have the right to alienate that grain from the local village and exchange it on an open market. As I read him, the most important thing that Langdon Winner has ever said is that in a democracy, this conflict of rights ought to be treated like any other conflict: it should be understood as a political dispute to be arbitrated by democratic procedures and argued in terms of competing conceptions of justice and the good life. In other words, this conflict of rights is like the one that arose when

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Lincoln freed the slaves: if Negroes have the right to political freedom, then Southern slaveholders cannot have the right to buy and sell them on slave markets. In this case, it is quite clear that slaveholders are going to lose some of the property rights that they previously had. To settle the case in favor of freedom is to appeal, knowingly or not, to one normative conception of rights or another.

However, Winner argues, we have tended to treat cases where rights conflicts arise as a result of technical change differently from cases where they arise as the result of an executive or legislative act, such as the Emancipation Proclamation or the Fourteenth Amendment. In practice, we have repeatedly failed to treat those who claim to have rights, capabilities or entitlements that are being threatened by technological change as having any standing whatsoever. It is not surprising that there would be no explicit *legal* basis for the villager's right to a share in the crops, if farmers and landowners really could not do anything besides share the crops with them anyway. But when that situation changes, when it is possible to load the crops on a wagon and sell them down the road, why do we (as the English did) take the absence of an explicit legal precedent for one party's putative right to be a reason for favoring the putative rights of those who benefit most from the technological change? Why should we always presume that people have a right to use new technology, even when doing so vitiates the capabilities or entitlements that someone else had before the technology existed?

Admittedly, there are many themes in play in Winner's thought, and they multiply even more when we include others who have written in the genre of what Pitt calls "social critique." As I read him, Winner's central points are (a) that we should not so presume, and (b) that we should treat technologically induced change in rights the way we would treat conflict of rights induced by a proposed legislative change. Once Winner's central point has been accepted, it becomes possible to construe the conflict between seventeenth-century villagers and farmers in light of a philosophical conflict between communitarian or egalitarian political philosophies, on the one hand, and utilitarian or libertarian political philosophies, on the other. That is, one powerful argument for favoring the villagers' entitlement is that loss of it will lead to dissolution of rural communities; another is that it will undermine their right to food, a key primary good. On the farmers' side, we may argue that allowing markets to allocate the distribution of goods will create incentives for more production, assuring the greatest good for the greatest number, or we may argue that given the farmers'

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investment of labor in the grain, it would be wrong to interfere in their disposition of the private property that they have thereby created. I think Winner tends to favor the first two philosophies rather than the latter two, and perhaps this is all Pitt means to point out when he accuses Winner of being ideological. Nevertheless, whichever political philosophies we are inclined to support, we must thank Winner for giving us one of the best statements of why constitutional issues are occasioned by technical change in the first place.

To bring the discussion full circle, one with utilitarian or libertarian proclivities may not see the plight of the seventeenth-century English villager as a case of the world gone wrong. While I do not know what Winner would say about the seventeenth century, he clearly thinks that something analogous is happening in our time, and he regrets it for basically communitarian and egalitarian reasons. A full philosophical articulation of these themes demands some statement of what community is and why it might be important, but it is not as if none are extant. Josiah Royce, John Dewey, Richard Bernstein, Emmanuel Mesthene, Charles Taylor and Alasdair MacIntyre all have interesting things to say about it. Whether sixteenth-century English villages or twenty-first-century Amish farming communities will fare well or poorly given a philosophical theory of community must, for the time being, be set aside.

But it is something of a different point to see our failure to take these questions seriously as a threat to democracy, and this is another topic of concern for Pitt. The threat to democracy does not consist in failing to be sufficiently communitarian or egalitarian, but in failing to even treat the question of whose rights have priority as a philosophical, political issue that needs to be decided. Pitt would fairly criticize not only Winner but also Sclove, Shrader-Frechette or Bookchin by pointing out ways in which they tend to run these two points together on occasion. But there *is* a threat to democracy here, even if it comes from people rather than machines. Lots of otherwise smart people exhibit a pronounced blindness when it comes to fundamental social changes that are brought about through technological innovation rather than political action. They see absolutely no reason to even question whether these social changes could be good or bad, and furthermore see advocacy of legal or governmental action to steer these changes as madness, irrationality, emotionalism or ideology.

CONCLUSION

In my view, E. P. Thompson's type of social history is part and parcel of an adequate epistemological analysis of technological change, as is Borgmann's

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type of existential epistemology. I am not sure that Pitt would disagree, but there are tendencies in *Thinking about Technology* to suggest that he might. One is the aforementioned tendency to emphasize engineering design and breakthrough technology. The "how it works" question relevant to seventeenth-century rural villages is simply that roads and wagons make it much cheaper (meaning physically easier and less time consuming) for someone who has already harvested a crop and put it in bags to search for millers and bakers who will offer the most attractive terms of trade. The "how it works" question relevant to Borgmann's 1984 discussion of devices concerns the way that, in making our lives easier, they may deprive us of experiences that enrich and give meaning to our lives. In my view, these are still epistemological points, and social ones at that, but is this "technical explanation" in Pitt's sense?

The more disturbing tendency is Pitt's quickness to find ideology, rather than philosophy, in the thinking of the social critics. This is particularly evident in Pitt's patronizing advice to social critics: "[R]ecognize that not everyone will accept your values and that others are equally well justified in rejecting your claims of superiority. You will have to work toward building a consensus, and this is fundamentally a political activity, not necessarily one governed by reason" (p. 120). So tell me, Joe, if consensus building is not governed by reason, why have you led us through a hundred odd pages of griping about the need to introduce more rigor into the social critique of technology? It is not as if the social critics have no arguments at all. We must evaluate those arguments, improve them when possible and reject them when necessary. You are right to tell us that we should attend to "how it works," when evaluating, improving or rejecting those arguments, but we must see both epistemology and social critique as amenable to improvement to do that. And for a pragmatist that is what "governed by reason" comes down to.

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