

Are We Running Out of Ingenuity?

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Homer-Dixon, Thomas. 2000. *The Ingenuity Gap: How Can We Solve the Problems of the Future*. New York: Alfred A. Knopf.

What happens when the resources we've come to rely on start to decline? What happens when environmental degradation begins to threaten human well-being? Can these problems lead to human conflict? When questions like these are raised in the Canadian media, Thomas Homer-Dixon is often called on to comment. Homer-Dixon is director of the Peace and Conflict Studies Programme and an associate professor in the Department of Political Science at the University of Toronto. His main area of research for the past decade has been the environmental causes of human conflict. A few years ago, after Vice President Al Gore asked him for advice on emerging conflicts, the U.S. Central Intelligence Agency even established a department to track environmental conflicts based on some of his ideas (p. 298). His most recent book *The Ingenuity Gap* has been a Canadian best-seller.

Although Homer-Dixon's major research interests have involved understanding the links between environmental and population changes and violent conflict, the main point of *The Ingenuity Gap* is to present an argument for why we should be less confident about our abilities to address such issues through the power of human ingenuity. This main argument can be broken down into two main sub-arguments. He makes a case that we can actually discern signs that our global civilization is losing the battle to preserve the environment and achieve economic and social stability. For this argument Homer-Dixon provides not only a vast array of empirical detail but also a fascinating set of personal anecdotes, many of which are drawn from his extensive travels. He also has an unparalleled knack for fashioning enlightening metaphors to describe the complex social issues he addresses. The great skill alone by which Homer-Dixon enlivens his essential scholarly endeavour makes his book well worth reading.

However, he also makes a more theoretical argument that there are inherent limits to ingenuity supply. At the core of this argument is the idea that increasing

complexity can challenge our ability to come up with the "right kinds of brainpower at the right places and times" (p. 29). According to Homer-Dixon it is foolish simply to have faith in human ingenuity. As he puts it, "as human-made and natural systems we depend upon become more complex, and as our demands on them increase, the institutions and technologies we use to manage them must become more complex too, which further boosts our need for ingenuity . . . but we should not jump to the conclusion that the supply of ingenuity always increases in lockstep with our ingenuity requirement" (p. 4). He provides numerous examples of the ways that ingenuity supply can be "impeded," which range from the impact of information overload to the increasing costs of scientific advancement.

Homer-Dixon's book makes a valuable contribution to a debate familiar to philosophers of technology, the debate between techno-optimists and techno-pessimists. However, he makes little reference to any literature from philosophy; rather, most of his sources are drawn from the disciplines of political science and economics. His main thesis, though, rests on a claim familiar to philosophers of technology, that technological development inevitably creates problems for which there may be no immediate technological solutions. As Homer-Dixon puts it, "looking back from the year 2100 we will see a period when our creations—technological, social, ecological—outstripped our understanding, and we lost control of our destiny" (p. 8).

Unfortunately, for all the skill Homer-Dixon has as a writer, there is a fundamental confusion at the core of the book. Although his arguments tend to support the techno-pessimist's position, when it comes to drawing lessons from these arguments he seems to suggest that becoming more technologically optimistic and dynamic is the best solution to the problems facing global civilization. This conclusion seems ironic because Homer-Dixon explicitly expresses the desire to counter the views of those he calls "economic optimists" as a major inspiration for writing the book. His wish is to warn people against placing too much faith in technology. One of his chapters is even titled "Techno-hubris." In an article about the book in Canada's national news magazine, *Maclean's*, the reviewer suggests that Homer-Dixon argues "that economic optimists, those who think that market signals and technology will guide the world safely through any future shocks, are dangerous" (Bethune 2000, p. 56). But Homer-Dixon is ultimately optimistic about the power of human ingenuity. As he speculates at the end of the introduction: "And we will think: if only—if

only we'd had the ingenuity and will to choose a different course. . . . I am convinced there is still time to muster that ingenuity and will but the hour is late" (p. 8).

This final set of statements exemplifies the core confusion of the book. Is the problem one of a lack of ingenuity ("if only we'd had the ingenuity") or is the problem one of making poor choices about some forms of our ingenuity ("if only we'd had the will to choose a different course"). Or, does the problem go beyond the difficulties of finding a proper balance between these two approaches to the challenges of technology?

Homer-Dixon's conclusion wavers between the two. In some places he writes as if he would simply like people to re-think some of their technological choices— for example, when he makes the following observation:

Moral, economic, and other values affect our choice of lifestyles, technologies, and social arrangements. Some of these things need much more ingenuity to produce and sustain than others, so our values powerfully influence how much ingenuity we need. For example, if we value things like sport utility vehicles and big houses that consume lots of natural resources, then we need more ingenuity to extract and process those resources than we would if we valued a less materially focussed lifestyle (pp. 330-331).

He is clearly aware that there is some scope for the ethical criticism of actions undertaken based on such "values." In his concluding chapter he asks "are sport-utility vehicles, five-bedroom houses, year-round air-conditioning, private summer cottages, and vacations in the Caribbean also essential elements of the good life?" (p. 398) However, instead of delving into this approach he insists throughout the book on forcing the issues he examines into the procrustean mould of the "ingenuity gap." While he presents many examples of the negative effects of certain technologies, his choice of the "gap" metaphor inevitably suggests that the central challenge facing our society is overcoming a deficit of ingenuity.

I suspect that some of the confusion is a result of a lack of awareness of a core debate that has gone on, and is still going on, in the field of the philosophy of technology. Writers in this field have for some time typically presented at least three, rather than just two, general ways of describing how our society can fail to

adequately address issues like those discussed by Homer-Dixon. For example, in an early survey of the field, Carl Mitcham and Robert Mackey point to three paradigmatic positions concerning how to conceive the central ethical challenge of technology. They describe these three positions as follows:

If [Emmanuel G.] Mesthene is right that technology is physical possibility, then a redirection of technology requires only that we choose to realise the new end; a "recovery of nerve" is what is essential. However, if [Nathan] Rotenstreich is right, that technology is rooted in the authoritarian mentality, then any significant change in direction of technology would involve a general alteration in man's root attitude toward the world. Whereas if [Jacques] Ellul is correct, such redirection seems out of the question, because technology develops by its own intrinsic principles (Mitcham and Mackey 1972, p. 30).

Mesthene's claim is essentially that technological change is a problem only because we too often fail, either through some kind of akrasia or through ignorance, to respond creatively to the new problems it presents. Rotenstreich's position represents the idea, held by many environmentalists, that a certain flawed over-arching metaphysical perspective is the source of many contemporary social woes. What they feel is most needed is a fundamental alteration in our core ethical attitudes before the problems of global civilization can be properly addressed. Ellul's position posits either some form of complete technological determinism, or some idea of dependency which imposes certain restrictions on the ability of people enclosed "within the technical realm" to be aware of and challenge aspects of that realm (Mitcham and Mackey 1972, p. 30).

Homer-Dixon's position has a great deal in common with the position of Mesthene. They share a basic assumption that one of the most important things lacking in most people's political and ethical lives is a properly focused effort to bring the negative effects of technological activity under sustained scrutiny so that creative technological problem solving can be effectively brought to bear. As Mesthene gives voice to this idea:

"Most of the consequences of technology that are causing concern at the present time--pollution of the environment, potential damage to the ecology of the planet, occupational and social dislocations, threats to the privacy and political significance of the individual, social and

psychological malaise--are negative externalities [that is] they are with us in large measure because it has not been anybody's explicit business to foresee and anticipate them" (Mesthene 1977, p. 163).

But such a position is hardly very different from that of the "economic optimists" who are generally too sanguine for Homer-Dixon's tastes.

Homer-Dixon is aware of the work of Langdon Winner, someone who holds a similar view to that of Ellul. He cites Winner in two places. However, Homer-Dixon seems unaware of Winner's expansive understanding of technology as "enduring frameworks of social and political action" (Winner 1986, p. x). Instead, he presents his own concept of *ingenuity*, which he defines as "sets of instructions that tell us how to arrange the constituent parts of our social and physical worlds in ways that help us achieve our goals" (p. 21). This definition, however, is not very different from Gabriel Marcel's concept of *technology*. Marcel defines technology as "a group of procedures, methodically elaborated, and consequently capable of being taught and reproduced, and when these procedures are put into operation they assure the achievement of some definite concrete purpose" (Marcel 1952, p. 82). If one puts aside Homer-Dixon's distinctive choice of terminology, his concept of *ingenuity* fits quite well with expansive understandings of technology like those of Winner and Marcel. But Homer-Dixon's choice of terminology contributes to the core confusion of the book. Because of the general positive connotations of the term *ingenuity*, his choice subtly reinforces the idea that what is most needed in most situations is to increase ingenuity supply. In other words, being critical of the idea of ingenuity is a little like being critical of the ideas of baseball, motherhood, or apple pie.

It can be somewhat disconcerting to read the work of someone from a different academic discipline who is tackling issues with which one is familiar. One must fight the sense of having heard it all before. Although Homer-Dixon re-fights many intellectual battles familiar to students of the philosophy of technology, he does so in a way that is insightful and provocative. It is important for philosophy of technology researchers to read this book because it has captured a wide public audience and will undoubtedly influence public debate concerning technological issues. Homer-Dixon's book also makes a valuable contribution to the debate between technological neutralists and those who believe that all technologies inevitably create new ethical and political dilemmas. His analysis supports the

claim that the impact of technology is often ambivalent and that its negative effects are not always simply a result of malicious human intentions.

However, what one must ultimately take away from his discussion is, I think, a lesson in why it is unhelpful to cast the debate about technology in terms of the binary opposites of "economic optimist" and "environmental pessimist." By accepting this opposition Homer-Dixon ends up falling into the trap of feeling that he ultimately must choose sides. In this overly limited view of the nature of the ethical and social challenge of technology, his work demonstrates the importance of including in one's analysis some awareness of the third type of paradigmatic position which Mitcham and Mackey attribute to Ellul. Homer-Dixon is aware that there are two fundamentally opposite ways to address the problems that our technological choices create. As he describes these two possibilities, "solutions to an ingenuity gap can involve either reducing the requirement for ingenuity or increasing its supply (or both)" (p. 397). It is clear that for Homer-Dixon the former typically involves the ethical criticism of problematic technologies, whereas the latter typically involves the creation of new technologies to address the problems created by problematic technologies. But as he admits, "for some reason we tend to think first—and sometimes almost exclusively—about increasing supply" (p. 397).

In this final observation Homer-Dixon identifies what I think is one of the most interesting questions concerning technology. It is unfortunate that it only comes at the end of his book. Ellul and others holding similar views, such as Winner, might be right in suggesting that we can become subject to some kind of deeply embedded bias towards the approach of increasing ingenuity supply. Homer-Dixon is aware of this kind of bias, but does not consider it to any great length, and, at least partially, even seems to succumb to it. One gets the impression that what he really wanted to do was question this kind of bias, but that he felt such a view would inevitably be so marginalized that it was imprudent to pursue such an approach to his subject matter. As he admits in an interview with *Maclean's*: "I'm fed up with being labelled a doomsayer; what separates me from being one of them is that I'm pretty impressed with human beings, their creativity and adaptability" (Bethune 2000, p. 56). In this desire to put distance between himself and the "environmental pessimists," Homer-Dixon attempts to strike what he feels is a proper balance between emphasizing the need for human creativity and the need for the ethical criticism of the products of human creativity. But in the absence of an analysis of his observation about

technological bias, his position comes off sounding like an endorsement of the position of Mesthene over that of Rotenstreich. I cannot help but feel his work would have benefited greatly from a deeper examination of the work of the likes of Winner and Ellul.

References

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“We’re all unstable all the time.” Though this may not at first sound comforting to those overwhelmed by holiday shopping, today’s Nerdy Curio from Engines of our Ingenuity examines how the subtleties of technical meanings aren’t always reflected in popular speech” and how instability is something we would not want to live without. Equilibrium. “We’re all unstable all the time.” Though this may not at first sound comforting to those overwhelmed by holiday shopping, today’s Nerdy Curio from Engines of our Ingenuity examines how the subtleties of technical meanings aren’t always reflected in popular speech” and how instability is something we would not want to live without. 3 min. Have we basically run out of any yet, and had to change, or are we still waiting to cross that bridge when we come to it? 0. reply. (Original post by a-witty-name) For a couple of decades it’s been said we’ll run out of a certain thing in a decade or two and we’ll be screwed, like coal and whatever that material was they use for gadgets which China has most of. Have we basically run out of any yet, and had to change, or are we still waiting to cross that bridge when we come to it? None, the UK actually has centuries of coal left and even decades of oil. 0.