ONE NATION
UNDER GOOGLE

[Citizenship in the
Technological
Republic]

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The 2007 Hart House Lecture Committee

Foreword

The Hart House Lecture was founded to inspire debate about visions of our place in the world, to create a public conversation with young people about issues related to personal and collective identity as well as the responsibilities of active citizenship. This annual lecture is relatively new, inaugurated in 2001 with Pico Iyer on the global soul; but it has already made a serious contribution to the public discussion of identity and citizenship. The series has developed a recognizable shape to which each lecturer adds another dimension. This year's presentation by Darin Barney not only expresses new fascinating ideas on our subject but also weaves together themes from the previous five lectures to bring our subject to another plane.

Every autumn, I have the pleasure of convening a committee of students and staff to select the focus and the lecturer. We spend several early mornings together in wide-ranging conversation about the people and issues which are seizing students' interest. Eventually we hone in on a lecturer and a topic; but this year was different. One of the students proposed Darin Barney at the very first meeting, convinced that his innovative work could provide a remarkable convergence of the concepts in our previous five lectures and bring new ideas. It did not take long for the committee to agree.

Each year when the draft of the lecture arrives, it is a thrill to put everything aside and just read it. When the committee members are captivated and cannot stop reading until the end, we know that the lecture has hit the mark. This year, we

experienced that thrill. Darin Barney has the gift of being able to present complex ideas and ask profound questions in a compelling and approachable way. The clarity of his explication of elemental matters such as citizenship, morals, ethics, ends, means and political judgement makes it possible to approach his almost overwhelming questions about the challenges of technology to citizenship. With wit and insight, Darin invites us to consider many important issues: how are we used by technology (rather than how we use technology); how does it affect the practice of political judgement by citizens in a democracy; how engaged are we as citizens in determining the direction in which technology goes; and what do we think about its unintended consequences and social implications. Finally, Darin's illuminating discussion of fundamentalism in relation to ethics and political judgement casts a clear light on one of the most troubling aspects of modern life.

An excellent lecture creates more questions than it addresses and draws us into a process of public listening to discover and explore significant ideas as a community. Darin Barney's lecture does just that. He helps us to create stronger, more nuanced notions of citizenship and the readiness not only to participate in the democratic life of our country but also to shape it.

Margaret Hancock
Hart House Warden
March 2007

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Revolution Redux

I n case you missed them, there were two more revolutions this past year. The first was proclaimed by the New Year's edition of Time magazine, in which the editors decided that the Person of the Year was "You." You as in YouTube, the video-sharing website that allows users to upload and download video clips and which, along with MySpace, Wikipedia, Facebook, Second Life, the Blogosphere and podcasting, is said to comprise a whole new world. What's it all about? "It's about," we are told, "the many wresting power from the few and helping one another for nothing and how that will not only change the world but change the way the world changes." It is not just "a new version of some old software…it's really a revolution." "Power to people," the headlines shout, "You control the Information Age."

The second revolution was proclaimed just over a week later. This time, it wasn't You, but "i": the iPhone, Apple's new handheld, wireless, e-mail and web-surfing computer, cellphone, audio and video player all-in-one. It has no buttons but, like us, it is touch-sensitive. "Every once in a while," reflects Apple's CEO Steve Jobs, "a revolutionary product comes along that changes everything." It changes everything. That is the definition of a revolution all right—it changes everything—but, if that is true, it is difficult to see how this word can sensibly apply to these technologies.

Do you feel—as you boil in traffic on the 401 to and from a job that pays you either too much or too little; as obscene wealth

and shocking poverty inexplicably pile up side-by-side on Vancouver's downtown eastside; as you prepare for the worst at the airport because of the sound of your name or the colour of your skin; as you numb to the spectacle of exploding villages and subway trains and classrooms; as you wince at news of beautiful northern children committing suicide because the world beaming into their communities by satellite offers them nothing to be or to do; as the same sort of people seem to keep making the same sort of decisions in the same sort of ways; as you try, but fail, to escape the appliances that shackle us now even as they connect us; as every night you wonder where the day went; or, as you salvage joy from beauty, work, friendship, intimacy, thought, struggle, a child, the wilderness, or the city—as you live through all of this do you ever feel, for one second, that everything changed when YouTube went on-line and the iPhone hit the market? Business models, perhaps. One would have to have a severely limited view of what constitutes change, and an impoverished sense of what is included in "everything," to think that a few new ways of exchanging information on the web, or the folding of two or three digital technologies into one, makes for a revolution. If the past few decades of living with the Internet has taught us anything it is that, whenever we hear the word "revolution" associated with a technology, somebody, somewhere, is about to get even richer and things are about to stay very much the same.

   This is an easy point to make. This rhetoric is, after all, just marketing hype designed to shift a few units, and we have become so accustomed to it that no one takes it seriously anymore. I would like to say that this is important because it is an example of how technology works to drain political language of its integrity, but it would be misleading to suggest that the admen are responsible for killing the real meaning of the word revolution. In this particular drama they are more like scavengers than assassins. The only reason the word can be used repeat-

edly to signify its opposite is because it long ago ceased to have any other sensible meaning in the political cultures of wealthy capitalist countries such as ours. The admen found the word revolution lying by the side of the road: it was there for the taking. The definition of revolution as technological innovation is not a crime against the word's real meaning but, rather, its only meaning in the contemporary context. Technology is bound up intimately with the possibility of politics, and the relationship between technology and the language with which we imagine that possibility is an important part of this intimacy. It would be to underestimate the complexity of this relationship to reduce it to something as incidental as the opportunism of the marketing profession.

We should also be careful not to allow the excesses of this style of rhetoric to become an excuse for failing to take seriously the very real consequences that accompany technological devices, systems and practices. We can be properly skeptical of the revolutionary claims made on behalf of YouTube and iPhone while still paying careful attention to the way in which technology—and here I refer to a broad range of technology that encompasses far more than merely the digital—is bound up with the organization of social life, the distribution of political and economic power, and the everyday practices that comprise a culture. While it may be misleading to characterize YouTube and iPhone as revolutionary, it would be equally misleading to suggest that inhabiting the world with the internet and mobile telephony is the same as inhabiting the world without them. Things happen when new technologies arrive on the scene, or when practices surrounding old technologies change.

In his 2005 Hart House Lecture, David Bornstein told the moving story of the Grameen Bank which, along with extending micro-credit to poor Bangladeshi women, also leases cell phones to over 100,000 "village-phone ladies" who make a living by selling access to the phones and, in the process, become

vital nodes in emergent intra- and inter-village social networks. In his 2002 lecture, Alan Lightman described how the proliferation of digital networks was changing the terms by which we might understand the meaning and possibility of privacy and private space. And, last year, Michael Geist stood here and detailed the implications of new media and copyright law for the creation and distribution of the types of cultural and intellectual work that sustain the possibility of a vibrant public sphere. These examples, drawn from the realm of digital information and communication technologies, are only the tip of the most recent iceberg to float down the river. Comparatively old technologies, such as the automobile and television, the laser and the combine, the telescope and contraceptives, continue to exert structuring influences on our practices, options, relationships and attention, even as market shifts and people's choices change the shape and character of these devices. And, when we draw the emerging possibilities of nano-, bio-, reproductive and genetic technologies into the picture, it is hard to deny that something is at stake wherever people live in the midst of technology.

In this evening's lecture, I would like to suggest that one of the things at stake for those of us who inhabit the world of technology is citizenship. I want to argue, in particular, that technology poses a significant challenge for citizenship, and I want to sketch out the dimensions of that challenge. I will begin by proposing a conception of citizenship that places the practice of political judgment at its core, and then talk about three ways in which technology bears on citizenship understood in this way: as a means, as an object, and as a setting for political judgment. The challenge that I will try to sketch here is both complicated and troubling, because it seems to rely on an intractable contradiction. On the one hand, individual technologies are always and ever political in both their genesis and their outcomes; in this sense, technologies always present an occasion for citizen-

ship, even when our civic equipment and institutions are not configured to make the most of these occasions. On the other hand, as a general cultural phenomenon, technology tends in the direction of depoliticization, insofar as technological societies remove from political judgment and contest questions that belong in the political realm. Technology is, at once, irretrievably political and consistently depoliticizing. It is at the centre of this contradiction that the prospects for citizenship in the midst of technology lie.

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Citizenship and Political Judgment

What is citizenship such that it could be challenged by technology? I would like to suggest that citizenship, like science and technology, is a way of knowing and acting, a way of being in the world, a practice. To say that citizenship is a practice is to say that it is something not merely borne but more precisely something done, not just an attribute but an act, not simply a status inherited passively or won through due process or struggle but a habit motivated by circumstance and obligation, cultivated through education and experience, consistently performed. There is a long history of thinking about citizenship this way, stretching back to Aristotle and extending through the republican and radical democratic traditions in western political thought. It can be distinguished from the rights-based conceptions that originate in classical liberalism and which prevail in most contemporary liberal democratic societies.

For classical liberals, citizenship names a particular relationship between an individual and the state, and between the members of one national community and another. Citizenship here means the individual possession of rights against the state and corresponding obligations to it, and establishes national identities as against others in territorially-defined units. This understanding of citizenship as a status entitling its bearer to rights and enrolling its bearer in a political community animates contemporary concerns with liberal democracy's ability to accommodate the dynamics of diversity, multiculturalism,

plurinationalism, migration, deterritorialization and globalization that are characteristic of the present era. Here, the key questions concern the principles upon which membership and its attendant rights are distributed, and the bases upon which people are formally included or excluded from the political community. Ideas about social citizenship add to this an appreciation that citizenship has material, as well as formal and legal, dimensions. In this view, the effectiveness of things like membership, rights and freedoms rests not only on equality before and under the law but also upon relatively equal access to the social and material resources that allow people to act on these entitlements. Citizenship understood in these terms was the central concern of Jennifer Welsh's 2004 Hart House Lecture, *Where Do I Belong?*

In this line of thinking, citizenship is about the formal qualifications, obligations and benefits of membership in a political community, and the conditions under which these can be distributed justly. To be sure, there are potentially many interesting and critical questions about the relationship between citizenship and technology that could be raised from this perspective. If access to the Internet is necessary to receive the government services to which a citizen is entitled, should access to this technology, or perhaps even the right to communicate, be numbered among the fundamental rights of citizens in the Information Age? When massive bottom-dragging freezer-trawlers arrived to all but replace the small-boat fishery and canning communities in Atlantic Canada, who had the right to speak about the technological change that so dramatically affected social and economic life in these places? And what if such technological changes originate in jurisdictions in which those affected have no rights or representation as citizens? These are important and difficult questions, but they do not get to the heart of the challenge technology poses for citizenship. For this, we need an account of citizenship that is not confined to questions about the

conditions or extent of *membership* in a liberal polity (*who gets in?*), or to questions about the *distribution* of material resources needed to make such membership practicable (*who gets what?*), but extends to questions about the quality of citizenship as a practice (*what do people do*?).

The practice of citizenship is, at its core, the practice of political judgment. To *be* a citizen is to bear the rights and obligations attached to membership in a given political community; to be *as* a citizen is to engage in judgment about common things in relation to and with others. In his excellent book *Political Judgment,* University of Toronto Political Science Professor Ronald Beiner observes that "judgment is a natural capacity of human beings that can, potentially, be shared by all." This suggests that, at least potentially, citizenship as a practice of judgment has a radically democratic character: it is something we are all capable of doing. Judgment provides a way of thinking about citizenship that puts it firmly within our grasp. As Professor Beiner writes:

> In every contact we have with the political world we are engaged in judgment. Judging is what we do when we read politics in our morning newspaper, when we discuss politics during family or friendly conversation, and when we watch politics on television. Judging is also what we as academics do when we try to keep abreast of the political developments in our world, or when we strive to appraise the course of modern political history. And, finally, judging is what we are doing also when we *do* politics, that is, when we act in a public setting or assume public responsibilities for which we are held accountable. The normal kind of contact that each of us—academics, political observers, and common citizens—has with politics is the opportunity to judge.[1]

If we consider that the category "common citizens" includes the great breadth and diversity of subject positions present in contemporary political communities—men and women; straight and queer; religious and secular; native and immigrant; rich and poor; black, red, yellow, white and brown—then we begin to see that the capacity for judgment is a quite inclusive basis upon which to think about the practice of citizenship.

This is especially true when we consider that there is a broad range of possible modes of engaging in political judgment. In most accounts, citizenship is characterized by participation in political judgment through public dialogue over what our ends should be, and what are the best means for attaining them. What we do when we do citizenship, when we make judgments, when we do politics, is engage with each other, in public, and give each other our reasons. On the way to judgment, we make claims and weigh and consider them in deliberation with others. In this sort of dialogue, we do not simply assert our own interests in speech, but form the self-understandings upon which our interests are based, through public encounter with the interests and understandings of others. We need not restrict the notion of dialogue to a narrow conception of rational speech that excludes entire categories of people and practice. Indeed, in the contemporary context, we have to acknowledge the multiplicity of modes in which citizens might make political claims, and the contribution made to the struggle for justice by these modes of expression and the people who use them. Concretely: when the Madres de Plaza de Mayo marched silently and incessantly before the presidential palace in Buenos Aires, their heads covered with white handkerchiefs embroidered with the names of their disappeared children, they were engaged, resolutely and dramatically, in an act of political judgment. It is not clear that this sort of public mourning comprises reasoned speech or dialogue, but it is undeniable that the Mothers were making a claim and practicing citizenship. The same might be said of the hack-

tivists running the OpenNet Initiative here at the University of Toronto, who research, test and promote technologies, such as their recently-released *psiphon* software package, designed to assist democratic activists seeking to circumvent censorship, surveillance and data filtration by authoritarian states. Writing code that makes it possible for a Chinese dissident to access unfiltered Google results surreptitiously might not be reasoned speech, but it surely is the act of a person making a political judgment, a person practicing citizenship.

Still, not all judgment is political. Part of what makes political judgment *political* is that it is always involves others. However, along with this formal attribute, political judgment has a substantive attribute as well: it is judgment brought to bear on claims about justice and the good life, with the latter understood not as the prosperous life or the easy life but a life lived well in common with others. We might say, then, that political judgment concerns both what is good and what is just, both ends and means—not just, for example, whether taxes are too high or too low, but whether capitalism is the best way to live.

Another way to put this—and this will become important later with regard to the possibility of political judgment in the midst of technology —is to say that, in the practice of citizenship, political judgment is brought to bear on both moral and ethical concerns. It is important that I take some time to specify what I mean by these terms, because the way I will use them is not the same as how they are normally used. In everyday language, "moral" refers to behaviour that conforms to some abstract community standard, perhaps vaguely religious in origin and sexual in its target, while "ethical" refers to something like uprightness or integrity in individual conduct, or adherence to some sort of professional code. That is not how I will use these terms.

For our purposes this evening, moral concerns will refer to questions of what is right or just to do, considered against a

backdrop of commitments that we generally share. So, let's say we all share the commitment that a good society is one that is determined to care for its least advantaged members; there is still a great deal to be decided when it comes to how exactly to meet that commitment. Are the poor better served by more generous welfare programs, or less generous ones that provide an incentive for them to improve their situation by other means? Which course of action is right, or more just, given that we all agree that it is good to help the poor? This sort of judgment is what I will call a moral judgment, a judgment undertaken in the moral sphere.

Ethical concerns refer not to questions about the right means to meet commitments we know we share but, rather, to questions concerning these basic commitments themselves, questions of the good which, in the debased public vocabulary of contemporary politics, are often rendered as questions of "values." Here, the debate is not over whether society can most justly meet its obligation to the poor in this way or that but, instead, over whether helping the poor is a good thing at all, and therefore something to which we should be collectively committed. This is an ethical question, a question for judgment in the ethical sphere. To summarize, judgment in the moral sphere concerns questions of means (by what means—prohibitions, incentives, silence, violence—can we justly meet the ends to which we are committed?) while questions of substantive ends (what should we be, want or do and why?) are located in the ethical sphere. Judgments in the moral sphere concern the just or the right; judgments in the ethical sphere concern the good.

Liberal societies tend to be based on the idea that, while moral questions about the right means to attain the good life are public questions subject to political judgment by citizens, ethical questions about the ends that comprise the good life are private, personal choices that ought to be protected from political intervention in the name of individual freedom. To be

a citizen in a liberal polity means that, while you have the opportunity to engage with others in judgment over moral controversies, your personal ethical commitments will never require public justification, or be subject to the political judgment of others. In liberal political theory, this is called the "priority of the right over the good."

In societies blessed with multicultural pluralism, as most contemporary liberal societies are, this can be a very stabilizing idea. Citizens in multicultural polities hold a diverse array of conceptions of the good life, and disagree over which among them is best. Under these conditions, if an individual's right to choose his own good—the bedrock commitment of a liberal order—is to be protected, such disagreements must not be politicized: the "values" that comprise a given individual's or community's conception of the good life are personal and private, and political adjudication between them risks illiberal imposition of one individual's or group's "values" upon others. Liberal states thus strive for institutions and procedures that provide for political conflicts over matters of justice while purportedly remaining neutral as to the competing conceptions of the good life that might animate parties to such conflicts. But, of course, liberal states are not neutral on the question of the good life. At their core is an ethical commitment to individual autonomy understood as personal choice as to the good, shielded from political judgment.

This may be one reason, among several others, why the practice of citizenship in liberal polities is so impoverished: because in these polities the scope of political judgment is formally limited to what I have been calling moral questions, or questions of means, and excludes what I have been calling ethical questions, or questions of ends and the substance of the good life. Among the most notable exclusions from political judgment in a liberal polity are liberalism's own ethical commitments. A liberal order's devotion to the principle of choice does not extend to

public choice-making about this principle itself. Thus, in liberal polities, citizenship as political judgment concerning both the right and the good is cut off at the legs, and the range of what counts as politics is reduced by half. Citizens in liberal polities get to engage in political judgment but, to quote Professor Beiner one more time, "it is a dialogue where the topic of conversation is always the same and the parties to the discussion always utter the same monotonous formula…There is no conversation about the kinds of individual or social purposes that might be *worthy* of pursuit, since questions of this sort would violate the whole liberal agenda, premised on the bracketing of any content. Instead, the citizens discuss one thing and one thing only: who gets what for the pursuit of individual life-projects."[2] As I will discuss in a few minutes, this tendency becomes particularly pronounced when liberalism, capitalism and technology assemble to form the setting in which the prospect of citizenship unfolds. A social order that systematically exempts from political judgment the ethical commitments that comprise its own account of the good life cannot do justice to citizenship: it requires a setting in which both moral and ethical questions are open to the possibility of judgment.

3

Means of Citizenship

Technology bears on the prospects of citizenship in three ways: as the means, object and setting of political judgment. I will discuss each of these in turn.

As means of citizenship, technologies—especially communication technologies—can be used to mediate judgment practiced in a variety of modes. This is as true of the aerosol spray-paint can as it is of the internet, but the latter has brought the potential of technology as a means of citizenship into high relief. It would be misleading to suggest that the bulk of what occurs online is motivated by, or directed to, explicitly political ends, or that democratic politics is somehow what the internet is all about. Still, it is undeniable that the internet has become an important instrument for those who are inclined to political judgment or action in one form or another. Whether it is the conventional politics of official leaders, governments, elections and political parties, or the marginal politics of opposition, resistance, solidarity and reform, the internet is now a standard means of political engagement for many citizens. The modes of engagement mediated by this technology are genuinely diverse. They include: production, distribution and consumption of political information; mediation of political discussion, debate, and deliberation; organization, mobilization and publicization of offline political action; as well as novel forms of tactical action within the spaces created by the medium itself. Digital disobedience, cyberactivism and online culture jamming have all emerged as viable and promising modes of political action and

judgment. The democratic potential of networked information and communication technologies is particularly dramatic in the context of authoritarian regimes whose power is sustained, at least in part, by their ability to exercise centralized control over access to information and the means of mass communication. Sixty million Chinese bloggers may be a democratic revolution in the making.

Or maybe not. Fang Xingdong, the founder of China's largest blog-hosting website, started out when he suspected that Microsoft had forced the deletion of some articles he had posted to chat-rooms that were critical of the company. Now, his company Bokee operates with the blessing of the Chinese government, probably because his employees comb the blogs hosted by the site daily, deleting obscene and politically objectionable content. And when Microsoft erased from its own MSN Spaces site the blog of dissident Zhao Jing, which for several months had featured political essays critical of the government, Mr. Fang knew exactly which side he was on: "If you use blogging as a political tool," he said, "you could destroy the development of blogging in China."[3] In China, the well-meaning urban elites who use the internet most frequently are also those who have benefited most from the country's recent economic boom. They are not necessarily interested in using the internet to shut down the government, and they are certainly not interested in supporting dissident activity that might cause the government to shut down the internet. Here, government censorship and enlightened self-interest collude in opposition to freedom of political expression and dissent. China is a complicated place, and it is easy to second-guess political motivations and strategies at a distance. The point is simply that access to information and communication technology does not automatically equate with politicization and a rejuvenation of citizenship.

There are many ways in which technology—again, especially communication technology—can be as much a means

of *anti*-citizenship as it is of citizenship. We are culturally pre-disposed towards thinking that any technology that increases access to information and facilitates new and extensive ways for people to communicate with each other must be good for democracy. However, the combination of expanding access to information and proliferating means of communication has never been enough to produce engaged citizenship on a broad scale. As many writers have observed, each of the telegraph, telephone, radio and television was accompanied by its own heroic rhetoric of democratic transformation and reinvigorated civic engagement. None have delivered fully on this promise, but each has been crucial for the maintenance of a system of political and economic power in which most people are systematically distanced from the practice of citizenship most of the time. For the most part, these technologies have been means of anything but citizenship: spectacular entertainment; docile recreation; habituation to the rhythms of capitalist production and consumption; cultural normalization. The internet, as a radically decentralized medium whose capacity for publication and circulation far surpasses that of its broadcast predecessors, has certainly provided the means by which politically-engaged citizens can access and produce politically-charged information that would never have seen the light of day under the regime of the television and newspaper. This information can be an important resource for political judgment. But the Internet also surpasses its predecessors as an integrated medium of enrolment in the depoliticized economy and culture of consumer capitalism. This is why we should be wary of equating more and better access to information and communication technology with enhanced citizenship. As Jodi Dean has put it in her book *Publicity's Secret*: "No one today should accept a model of political life that would work just as well as a motto for Microsoft or AT&T."[4]

4

Objects of Citizenship

Whenever I tell people that I am interested in technology and citizenship, they automatically assume that what I mean is that I am interested in how governments, political parties and activists *use* technology as a means for practicing politics. They have a hard time understanding what I mean when I tell them that I am more interested in how people are *used by* technology. Sometimes I quote Martin Heidegger who, in his famous essay "The Question Concerning Technology," said: "So long as we represent technology as an instrument, we remain held fast in the will to master it. We press on past the essence of technology."[5] This, of course, clears everything up right away.

What I should say is that how we use technologies as instruments or *means* really represents just one way in which technology bears on citizenship, and if we focus too exclusively on that we run the risk of ignoring other, probably more significant, aspects of this relationship. One of these other aspects is the status of technology as an *object* of political judgment. What does it mean to say that technology ought to be an object of political judgment? It means that, because technological devices and systems have such dramatic consequences for human social, economic and cultural relationships and practices, their development, design and regulation should be subject to the political judgment of citizens. Technologies are not just neutral instruments or means. They are, rather, intimately bound up in the establishment and enforcement of prohibitions and

permissions, the distribution of power and resources, and the structure of human practices and relationships. Contemporary philosopher of technology Andrew Feenberg captures this perfectly when he writes:

> Technology is power in modern societies, a greater power in many domains than the political system itself. The masters of technical systems, corporate and military leaders, physicians and engineers, have far more control over patterns of urban growth, the design of dwellings and transportation systems, the selection of innovations, our experience as employees, patients and consumers, than all the electoral institutions of our society put together. But, if this is true, technology should be considered as a new kind of legislation, not so very different from other public decisions. The technical codes that shape our lives reflect particular social interests to which we have delegated the power to decide where and how we live, what kinds of food we eat, how we communicate, are entertained, healed and so on.[6]

If this is true, then how could a society that understands itself to be a democracy possibly *not* make technology an object of political judgment on a routine basis? Yet one of the defining characteristics of a technological society such as our own is that the design, development and regulation of technology is often exempt from formal, democratic political judgment, left instead to the private interests and technical calculus of scientists, engineers, military and police agencies, major corporations, technocrats and consumers. It is true that certain technologies are subject to regulatory oversight with respect to questions of safety, health and the environment but, for the most part, we citizens just take what we get when it comes to technology. We live in the world of the cell-phone, the automobile, the jet air-

liner, pharmaceuticals, plastic, video surveillance, the computer, gas pipelines, the supermarket and endlessly proliferating screens, whether we like it or not: nobody asked us.

But how could they possibly have asked us? The normative argument for making technology an object of political judgment is far easier to support than the practical one. Let's take the emerging field of nanotechnology, for example. Nanotechnology resides at the crossroads of physics, biology and chemistry, and refers to the manipulation of materials and fabrication of devices at the scale of one-billionth of a meter. If its promises come true, nanotechnology will produce: computer chips whose speed will leave even today's fastest processors in the dust; tiny vessels capable of delivering pharmaceuticals directly to sick cells; lightweight, super-strength materials that will enable us to travel farther and faster than ever before; weapons and armour that will make short work of enemies, both military and domestic; photovoltaic cells for converting the sun's rays into electricity at rates of efficiency that just might save the planet. And, most exciting of all: stain-resistant pants. The word "revolutionary" is often used to describe the potential repercussions of nanotechnology, and it seems much more plausible here than when used to describe the iPhone and YouTube.

Not surprisingly, governments around the world have been investing billions of dollars into research in this area. Your dollars. Which raises the question: did anybody ask you? Of course they didn't. What would they ask? Shall we pursue research into technologies that might cure cancer and solve the world's energy and pollution problem? Can you imagine an answer to this question that is anything other than an emphatic yes? And what questions might you have about these technologies? What are the possible unintended consequences? Will some people benefit more than others? How could they possibly know? And what venue would be right for asking these questions? An election? A committee meeting? An online opinion poll? The challenge

that technology poses for citizenship is not just that we do not treat technology as an object of political judgment, but that it is difficult to imagine how we possibly could.

There are two objections commonly brought against the idea of subjecting science and technology to democratic political judgment. The first is that everyday people lack the expertise and literacy necessary to make informed, reasonable judgments about highly specialized and complicated technological controversies. The magnitude and complexity of the considerations involved in a major technological development like nanotechnology are such that, even when citizens are invited to the table, things very quickly reach the point where they concede that the big decisions are probably best left to the experts. Either that, or discussions take place at such a level of generality that they are effectively meaningless. This is why the "citizen engagement" and "public consultation" exercises that now routinely accompany projects in the fields of nano-, bio- and genomic technology are often as much about gauging and assuaging irrational public fears as they are about involving an unqualified public in anything approaching actual decision-making.

The second common objection to treating technology as an object of political judgment is that, if every technological development required endorsement by citizens after something resembling a process of democratic debate and deliberation, the world would be full of a lot of very bad technology, or perhaps none at all. The wheels of innovation turn much more quickly than those of democratic deliberation, and require a much higher tolerance of risk than the everyday public is willing to bear. To require public engagement in technological design and development would be to cripple the forward march of technology and undermine the economic dynamism that comes with it.

Both of these objections are based on a prejudicially low estimate of what everyday citizens are actually capable, and so do

not really constitute persuasive reasons for shielding technology from political judgment. People are smarter than we sometimes think they are, and they are perfectly capable of making good judgments about complicated things, especially under the right conditions. Folks might not know the difference between a buckyball and an organic semi-conducting polymer but, put them in a room with a few scientists who have been ordered to answer all of their questions in intelligible language, expose them to competing but reasonable viewpoints, and give them as much time as they need to talk to each other, and they will probably come out with a quite reasonable position on whether it is a good idea to proceed with nanotechnology development even before we know what happens when people inhale or ingest these tiny synthetic particles. And I would be willing to bet that their judgment would be motivated more by the reasonable hopes they have for the environmental benefits of sprayable solar energy collectors than it would be by irrational fears of a rampaging blob of self-replicating gray goo. Given the collective investment we have made in technology as the means to a prosperous and secure future, it is hard to see why subjecting it to political judgment by the very people who have made this investment would necessarily slow its progress.

Perhaps the problem with making technology an object of political judgment lies not in the limited capacities of the people, but in the nature of technological development itself. If we were to agree that technology ought to be made the object of political judgment, on what basis should we decide which technologies should be singled out for political scrutiny? Perhaps it should be all of them. Imagine it is six o'clock and you are just sitting down to eat supper when the phone rings: "Hi Darin? Yeah, this is Gordie from the Neighbourhood Technology Watch Committee. It seems that Bob down the street wants a permit to buy one of them ride-along mowers. He says that since the National Committee approved them for a three-year trial period it's his

right to have one. I suppose he's got us on the justice angle, but Bernice here isn't sure if watching him drive that thing around every Sunday afternoon is exactly her idea of the good life. Anyway, we have to convene the Ethics Subcommittee tonight to deal with this. Can you make it over at 7? What? I know there's a game on – don't worry. We'll have it going on the TV in the corner. What's that? Of course I've got a TV. Why do you ask?"

This may seem a trivial possibility, but it raises a serious issue. Some technological interventions – the building of a gas pipeline that will interrupt important ecosystems and migration routes; the marketing and sale of genetically-modified organisms as food in supermarkets; a new hydroelectric dam—are of such a scale, magnitude and potential impact that it seems obvious that their development would be properly politicized. On the other hand, many interventions—composite fibre hockey sticks; USB keys for portable data storage; table-top bread-makers—are so minor that they are unlikely to inspire anybody to run out and start a committee. But what about the broad range of technologies that exist between these extremes? Automobiles; suburban cineplexes; high through-put grain terminals; video-surveillance cameras; radio-frequency identification tags; biometric scanning devices; industrial hog and poultry manufacturing plants; superconducting particle colliders; Wal-Mart; airports; wi-fi infrastructure; pharmaceuticals. How, from this broad array of technologies, which either alone or together have dramatic implications for how we live, are we to determine which is to be nominated as an object of political judgment by citizens?

And, once nominated, then what? At what point in its development should a technology be judged? Social studies of science and technology have taught that there never really is a moment when a given technology presents itself as a stable, discrete object that can be held apart from society for consideration by subjects who are somehow separate from it. Technologies do

not drop like black boxes from the sky. They are the social product of countless antecedent possibilities and failures, combinations of design, accident, situations both predicted and not, and uses both intended and unintended. Even the most seemingly efficient, elegant, perfectly-engineered and seamlessly deployed technology conceals what is really an unruly nest of contingencies. This is why a technology is much more easily studied and understood after it has run its course than while it is still in the middle of running it. And it is why, when I say that technology ought to be made an object of political judgment, what I should be saying is that, in order for this to happen, a given technology must first be *constructed as an object* open to such judgment.

In some cases, such as those in which a technology about which we already know a great deal is being considered for adoption in a new context, this is not a difficult operation. Material circumstances force the issue onto the political agenda, and past experience provides a basis for deliberation. When the people of the Canadian North are asked to make a judgment about the Mackenzie Valley Pipeline Project, they have a pretty good idea about what sort of technology a pipeline is, what it can and will be used for, what sort of interests it serves and what its possible costs and benefits for their communities and livelihoods might be. The same goes for people in a small town when they are confronted with the appearance on the outskirts of a massive new retail technology like Wal-Mart. They know exactly what it means and what it might do for or to them, and they have a good idea of exactly which trade-offs they will have to consider when, if they are given the opportunity, they are called to make a judgment as to whether to embrace or reject this technology. These are simple examples—though their stakes should not be underestimated—but it is possible to take even more complex technological phenomena and construct them as objects open to political judgment by citizens.

This is exactly what the Danish Board of Technology does.

Since 1986, (it was originally called the Technology Board, but was renamed in 1995) the Board has been mandated to inquire into the social implications of emerging and existing technologies, not just by consulting with experts, but specifically by engaging Danish citizens in making judgments on technological issues. Based on these judgments, arrived at after carefully-constructed public proceedings that marry research, expertise and public deliberation, the Board advises the Danish Parliament on matters of technology investment, legislation, regulation and governance. Here is a sample of the technological issues that Danish citizens, via the Board of Technology, have constructed as objects of political judgments over the past two decades: gene therapy; telemedicine; genetically-modified foods; technology and noise; electronic surveillance; technology in schools; open-source computer software; technology and work/life balance; free public transportation; nanotechnology; alternative fuels. This year they will ask citizens what they think about: renewable construction technology; priorities in government technology research funding; the security of public information infrastructure; and what should happen when someone's job is lost due to technological innovation.

Now let me ask you something: when was the last time *your* government asked for *your* judgment–not just your private opinion as a consumer, gauged by some obnoxious survey on the telephone in the middle of dinner, but your thoughtful, considered, public judgment as a citizen—on questions like these? I will go out on a limb and assume the answer is "not lately." This speaks volumes about the distance between our society's democratic self-image and its actual political practices. We have to keep in mind that, in our culture, politics is not understood as the practice of judgment that I have described this evening, but rather as a vaguely dishonourable, primarily strategic game in which people seek to secure their own private interests against those of others. In this context, "politicization" does not mean

exposing questions of justice and the good life to public judgment; it is, rather, a dirty word signifying that from which the things that *really* matter should be insulated. In our society, one of the things that really matters is technology. When it comes to matters of technological design, development and regulation, the stakes are too high, the risks too great, and the promises too golden, to subject technology to something as unpredictable as politics, particularly the politics of a democratic citizenry. In a resolutely technological society, citizenship is basically a risk to be managed. The mainstream culture of a technological society does provide room for choices in relation to technology: the choice to adapt or suffer deprivation, the choice to consume or abstain. But consumer choices and political judgments are not the same thing, and this situation should be enough to make us wonder whether a society like ours can really be democratic and technological at the same time.

5

Settings of Citizenship

Technology is deeply political. It provides instruments that can, at least potentially, be used in political projects. The development and design of technological devices and systems always reflect particular combinations of, and contests between, actors and institutions that represent particular political interests. And the outcomes of technological development and design are always political because power, justice and the good life are always at stake in them. Technology is political to its core. Why, then, is technology one of the most depoliticized, and depoliticizing, forces at work in contemporary society? I think the answer has something to do with a third way in which technology bears on citizenship. Technology is not just something we might use in practicing citizenship, and it is not just something against which the judgment of citizens might conceivably be brought to bear. It is also an important part of the material and cultural context in which the meaning of citizenship is made manifest. The challenges that technology poses for citizenship as a *means* and as an *object* of political judgment are formidable, but they pale by comparison to the challenge posed by technology as the *setting* in which the possibility of political judgment is contained.

What does it mean to say that technology is the setting for citizenship? Whatever else you may wish to call it, ours is a technological society. A technological society is one that is saturated by technological devices and systems, many of them functionally integrated, and which experiences technological dynamism

as a constant condition. It is a society in which an expansive range of human activity and attention, both individual and collective, is mediated by these devices and systems. As such, a technological society is one in which social organization and, especially, economic life are bound up tightly with technology. It is a society in which technology is culturally identified with material prosperity and moral progress, and in which modes of practice and reasoning associated with technological systems—in particular the priority placed on efficient means relative to worthwhile ends—cross over into other, non-technological, spheres of activity. In a technological society, technologies are not just tools or instruments; they are a way of being in the world. As Langdon Winner has said, technologies are "forms of life."[7] My question is whether technology—in its ideological and ethical dimensions—is a form of life that includes the possibility of citizenship.

To live in a technological society such as ours is to be committed to a collective project in which the progress of technology is closely associated with possibility of well-being and self-realization. When it comes to technology, we are in it together. This has certainly been the case historically in Canada. The story of the achievement of the Canadian nation is often told as a story in which technology has been the means to overcome the various adversities nature and circumstance placed before us: the spatial and temporal expanse of the territory; the brutality of its geography; the yoke of colonial dependency; the threat of continental integration; the diversity of our linguistic and regional political cultures. Technology overcame these obstacles, not just mechanically, but also as an idea. If all modern nations are "imagined" communities, then technology has been a central part of the historical imagination of Canada.

Technologies such as the Canadian Pacific Railway and, subsequently, the telegraph, telephone, broadcasting and Internet provided material links between far-flung compatriots.

More importantly, these and other technologies have provided the language of a synthetic common purpose that has inspired and bound us politically, and perhaps even spiritually, despite our many differences. We may be the most multicultural country on earth, and we may be divided by differences of race, class, language and gender, but we can be one nation under Google. It is not just that, as Maurice Charland writes, "Canada owes its existence to technologies which bind space," but also that "the idea of Canada depends upon a rhetoric about technology." Technology extends the Canadian presence across territory, and also enforces dominion over the consciousness of its inhabitants. As Charland puts it: "the popular mind, like the land, must be occupied."[8] Technology occupies the land, but it also serves as a unifying common project that lends coherent purpose to a diverse people, and demands their commitment and identification. The most recent example of this sort of technological nationalism in Canada has been the so-called "innovation agenda," promoted by the Canadian government since 2001 as the substance of a New National Dream.

The New National Dream is the collective project of economic restructuring to which capitalist and state elites in Canada have been committed for at least the past two decades. This restructuring has relied heavily on a massive commitment to the development and deployment of new technologies across all sectors, to the cultivation of an economic climate of enterprise, flexibility and innovation and, crucially, to legitimation of a particular relationship between the state and the market vis-à-vis technological development and innovation, in which the state's role as a regulator and redistributor of resources is reduced, and its role as a facilitator, sponsor and promoter of capital accumulation is enlarged. The fundamental restructuring of the Canadian economy in recent years around these priorities has had significant material effects on the distribution of power and security in Canadian society, and on the working

and social lives of most Canadians. Many of these effects have entailed real sacrifice, especially on the part of Canadians at the bottom end of the various polarizations characteristic of post-Fordist economies. In other words, it is a highly contentious political project in which some interests might be served better than others. However, in presenting the innovation agenda as a technological project, connected seamlessly with Canada's historical destiny as a technological nation, Canadian elites have more or less succeeded in effacing the deeply political nature of this project, insulating it from contest and opposition. For whom among us, after all, would stand up against innovation? Against a strong and globally-competitive economy? Against the imperative for Canada to be a leader in the race for technological advantage? Against our own history as a nation of innovators? Are we to let *mere politics* bring down the technological republic?

In his magisterial 1934 book, *Technics and Civilization*, Lewis Mumford wrote that "Every culture lives within its dream."[9] Ours is the dream of a nation made strong and whole by technology. And so long as we live within this dream it will be very easy for the captains of commerce and industry to invoke technology as a reason to exclude questions of justice and the good life from the political judgment of citizens. This is the ideological character of the setting technology provides for citizenship. In his influential essay "Technology and Science as Ideology," Jürgen Habermas suggested that any polity organized around massive state support for ongoing capital accumulation is "structurally dependent on a depoliticized public realm," because the legitimacy of such an arrangement could never withstand genuinely democratic political scrutiny. In this context, technology serves an idea by which "the depoliticization of the masses can be made plausible to them."[10] Ideologically speaking, an iPod in every pocket is not simply a tool for distracting people from engagement in political judgment, it is a token of

their membership in the technological republic, whose citizens have been convinced that some things are just too important for politics.

This is not to suggest that people are simply duped by politicians and corporations who dress up their partisan interests in the language of technological nationalism. The only reason such gambits work at all is because they tap into commitments that people hold quite deeply already. In this sense, the ideology of technological nationalism reflects, rather than creates, a broadly-shared commitment to the good of technology. Nobody needs to tell us that technology is the good life, because that is something most of us already believe. It is in this sense that technology provides a setting for citizenship that is not only ideological, but also ethical.

"As they become woven into the texture of everyday existence," Langdon Winner writes, "the devices, techniques and systems we adopt shed their tool-like qualities to become part of our very humanity. In an important sense we become the beings who work on assembly lines, who talk on telephones, who do our figuring on pocket calculators, who eat processed foods, and who clean our homes with powerful chemicals."[11] As forms of life, technologies make ethical claims upon us, claims that carry a particular view about the substance of the good life. In the 1990s, when governments and corporations across the developed and developing worlds were racing to build high-speed, digital network infrastructure, they were making a claim about the good life. The governments and corporations that are now investing billions of dollars into nanotechnology research are making a claim about the good life. And, as they slowly but surely pursue the path of opportunity now set before us by the possibilities of genetic engineering, these same corporations and governments will, again, be making a claim about the good life.

Earlier this evening, I said that citizenship is political judg-

ment exercised in both the moral *and* the ethical spheres, judgment about means *and* ends, judgment about justice *and* the good life. This suggests that, for the possibility of citizenship to be realized, the ethical claims embodied in the technological forms of life to which we have been committed must be opened to political judgment. This is a much harder condition to satisfy than even subjecting the moral dimensions of technology to political judgment. We can engage in judgment about the moral dimensions of a technological controversy—for example, over whether it is right for the state to have unfettered access to the records of internet service providers—without calling into question the ethical commitment to technology as the good life. One need not contest the ethical dispensation of technological society in order to make a judgment about the unjust direction imposed upon it by Microsoft, AT&T, Verizon and the Pentagon. Indeed, it is more likely that those who are motivated to engage with that controversy on a moral level will be those whose ethical commitment to technological society is also the strongest. Nevertheless, a thoroughgoing practice of citizenship will be one that also subjects the ethical commitment to technology *as a good way of life* to ongoing political judgment.

Technological societies do not provide a hospitable setting for this sort of reckoning. As a way of being in the world technology mitigates against other ways of being in the world, including citizenship, especially when the latter is understood to be a practice of political judgment that includes ethical questions about technology itself. It does this by so thoroughly occupying the foreground of our experience that it eclipses both its own ethical background and any possible alternatives. To be a citizen, as Lorenzo Simpson observes, is to "pose questions to ourselves about our way of being, about how we live our lives."[12] This is the essential ground upon which political judgment of ethical claims must rest: we cannot make judgments about the good life unless we are open to the possibility that it might en-

tail something different from the way things just happen to be at the moment. But this ground can be difficult to find in a technological setting. In a technological society, the question of what is good, or how to live, is prejudicially answered in the very fabric of its material constitution, and constantly reinforced in its popular culture. As such, it provides little or no space in which the claims technology makes upon us can be confronted with viable alternatives. And even if such space existed, it is not clear that inhabitants of technological societies any longer have at their disposal an ethical vocabulary that is displaced from what they see in the technology that surrounds them. As George Grant has written: "All coherent languages beyond those which serve the drive to unlimited freedom through technique have been broken up in the coming to be of what we are…We have been left with no words which cleave together and summon out of uncertainty the good of which we may sense the dispossession."[13] Thus the pervasive and brilliant everydayness of technological experience works to obscure its contingency as an ethical claim that might be subject to political judgment in relation to competing claims. Perhaps this is why, when confronted with the possibility that the environment might collapse under the weight of the global technological adventure, the imaginations of our political leaders seem confined to an alternative that is no alternative at all: more, better technology.

In this eclipse of the ethical dimension of political judgment, contemporary liberalism conspires with technology against the possibility of citizenship. It does so not only by recommending strongly against the politicization of ethical questions, but by giving an account of the good life that resembles very closely the account given in technology. Earlier, I described the prevailing ethic of liberalism as commitment to the principle of choice, but when liberalism is held together with technology it becomes clear that this commitment is the token of an even deeper devotion to what Grant has called "that primal

western affirmation…the affirmation of human beings as 'will.'"[14] Under the liberal dispensation, the good life is understood as individual autonomy and self-realization achieved through free exertion of the will, an account that comports well with a technological society's promises of freedom, mastery, convenience and choice. This is the ethical commitment to which a radical practice of citizenship in technological society must address itself. This presents a considerable challenge, for liberalism and technology form a circle of mutual reinforcement that is difficult to interrupt. To paraphrase Grant, the greatest achievement of liberal societies is that they have allowed technology to flourish, and the greatest benefit of technology is that its supports a liberal society. Albert Borgmann goes so far as to posit an ethical identity between liberalism and technology: "Liberal democracy is enacted as technology. It does not leave the question of the good life open but answers it along technological lines."[15] In a liberal society, the good life is a private choice, not a matter of public judgment. However, even as it recommends against political judgment of ethical claims in the public sphere, liberalism nevertheless advances a particular vision of the good life that just happens to be the same as the vision offered by technological society. And, as with the claims of technology, the claims of liberalism are so pervasive that they scarcely register as claims at all. Liberal, capitalist, technological society need not defend its claim to being the best way to live, because it is the only way.

Taken together, technology and liberalism cast a sort of spell under which the space of political judgment shrinks from view, or at least that portion of it in which ethical claims about the substance of the good life might be critically engaged. This, of course, is a curious and paradoxical outcome for an ethical system based on the principles of choice and freedom, but such is the riddle of technology. Earlier, I said that a society that exempts its own basic ethical principles from political judgment

cannot provide the setting for a robust practice of citizenship, but it would appear that this is precisely the sort of setting provided by technological society. This is a challenge for citizenship that is perhaps even more fundamental than that posed by technology as a means or object of political judgment.

6

Against Fundamentalism

That word fundamental is an interesting one. Listening to me over the past hour, some of you may have been growing increasingly uneasy about the implications of the critique I have been pressing. You might be wondering which side I am on. After all, if technology is progressive, and the opposite of being progressive is being conservative, then I must be conservative. And what's the matter with liberalism, anyway?[16] And am I seriously opposed to an ethics based on the principle that individual choice is the highest good? The answer to the last question is yes, but you would be surprised at the sort of political positions you can still arrive at even after you have displaced choice as a sovereign value. And that, I suppose is my point: any system that shuts down the ethical sphere to political judgment on the question of the good life is a system that is hostile to citizenship. Such systems—and I believe technology is such a system—are the very definition of fundamentalism. But the solution to technological fundamentalism is not simply to replace it with an alternative, but equally depoliticizing, fundamentalism. Such a response would be more reactionary than critical and, ultimately, futile.

This is why so many recent jeremiads against technology are so politically frustrating, insofar as they compound rather than relieve the condition I have tried to describe this evening. A good example would be Margaret Somerville's 2006 Massey Lectures, in which she sounds the alarm regarding the ethical controversies surrounding new genetic and reproductive technologies.[17] I am all for sounding alarms where technology

is concerned, and I think she is correct that new genetic and reproductive technologies present us with ethical challenges we are only beginning to appreciate. Justice and the good life are definitely at stake in these technologies. But the response Professor Somerville proposes is as inadequate to the demands of citizenship as is the technological society against which she purports to speak.

Professor Somerville's alternative to the ethics of technological society rests on what she describes as "a basic presumption in favour of the natural." Let us set aside the problem of even conceiving of a stable, disinterested, non-political conception of "the natural" that could somehow have meaning prior to its construction and circulation in social discourse.[18] For the sake of argument, let us assume that something like "the natural" is, in fact, available to be presumed. The reason which Professor Somerville offers in favour of this presumption is precisely that it eliminates the need for political deliberation, judgment and struggle in the face of ethical controversies concerning what is good. As she says, "The importance of basic presumptions lies in the fact that the person relying on a basic presumption *does not have to prove their case…*".[19] In other words, armed with this presumption, a person does not have to subject her ethical claims to political judgment. She simply has to assert them, even if they are, by definition, formed prejudicially. Citing the example of a question about using genetic manipulation to produce fearless soldiers, Professor Somerville declares that her "intuitive reaction was that this would be profoundly unethical," and goes on to describe how one can "[use] a presumption in favour of the natural as a backup mechanism to validate a conclusion that a certain intervention is inherently wrong."[20] Now, I have no interest in genetically-modified soldiers (unless we could somehow figure out a way to get them to kiss, instead of kill, each other). Still, what Professor Somerville is proposing is an ethical system in which an ethical *prejudice* can be used to confirm an *intuition* about which side to take in a specific ethi-

cal controversy, insulating the whole question of what is good from genuinely political deliberation and judgment. That, of course, is the very definition of fundamentalism. I am not sure that an ethical system that amounts to little more than justification of particular prejudices by recourse to a mythical *a priori* is something we should be too keen to get behind.

At least not if we care about citizenship. Proposals like this basically amount to substituting one depoliticizing ethical system for another, neither of which leaves much room for political judgment on the most important questions. Alternatives such as Professor Somerville's are really not alternatives at all, because they simply reproduce the basic ethical imperative of technological society, which is to exclude the question of the good life from political judgment. As with technological society, so with Professor Somerville's ethical imagination: some things are just too fundamental to be left to the political judgment of citizens. What we need is not an ethicization of politics, but a politicization of the ethics of technology. In my view, the only anti-fundamentalist alternative is to assume the risk of opening questions about what is just and what is good in technological society to the political judgment of citizens. What we need is not an ethicization of politics, but a politicization of the ethics of technology. This would be a massive undertaking, and it would definitely come with its share of risks. We will be unable to predict in advance what the answers to these moral and ethical questions will be, and we will have to engage with people with whom we radically disagree. They might even win sometimes. And we will make some mistakes. Still, you either believe in citizenship or you don't. To practice politics is to join with others, and to judge with courage in the face of opposition and uncertainty. The alternatives are the fundamentalism of technology, or the fundamentalism of its opponents. Both of these may be less risky, and they are certainly less work, but their price may be the very possibility of citizenship itself. And that price is too high to pay.

Notes

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6   Andrew Feenberg, Questioning Technology. New York:
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7   Langdon Winner, The Whale and Reactor: A Search for Limits
    in an Age of High Technology, Chicago: University of Chicago
    Press, 1986.

8   Maurice Charland, "Technological Nationalism," Canadian
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9   Lewis Mumford, Technics and Civilization, New York: Harcourt
    & Brace, 1934. 28

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    Press, 1970, 122.

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12 Lorenzo Simpson, Technology, Time and the Conversations of
    Modernity, New York: Routledge, 1995, 40.

13 George Grant, Technology and Empire Toronto: Anansi, 1969, 139.

14 George Grant, English-Speaking Justice, Toronto, Anansi, 1974, 63-64.

15 Albert Borgmann, Technology and the Character of Contemporary Life, Chicago: University of Chicago Press, 1984, 92.

16 See Ronald Beiner's What's The Matter With Liberalism? Berkeley: University of California Press, 1992.

17 Margaret Somerville, The Ethical Imagination: Journeys of the Human Spirit, Toronto: Anansi, 2006.

18 Professor Somerville appears unaware that, as a category, "the natural" is a creature of "the technological," insofar as the concept of nature emerges only as the other to artifice and technology, the constructed object of human domination and mastery.

19 Somerville, The Ethical Imagination 107. Emphasis added.

20 Somerville, The Ethical Imagination 108.

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A pioneer working at the crossroads of social sciences and the humanities, Barney's interdisciplinary research focuses on citizenship in a technological society. He has written numerous books and articles on technology and citizenship, with special emphasis on the democratic implications of digital information and communication technologies. Such titles include *Communication Technology: The Canadian Democratic Audit* (2005), *The Network Society* (2004), *Prometheus Wired: The Hope for Democracy in the Age of Network Technology* (2000), and several articles on the relationship between digital technology and community, citizenship and the public sphere.

In 2004, Barney was selected as one of fifteen "Leaders of Tomorrow" by the Partnership Group for Science and Engineering. Also, in 2003, he won the inaugural Social Sciences and Humanities Research Council of Canada *Aurora Prize* for outstanding contribution to Canadian intellectual life by a new researcher.

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