How Technology Changes Our Idea of the Good

Mark Sentesy

Abstract: The ethical neutrality of technology has been widely questioned, for example, in the case of the creation and continued existence of weapons. At stake is whether technology changes the ethical character of our experience: compare the experience of seeing a beating to videotaping it. Interpreting and elaborating on the work of George Grant and Marshall McLuhan, this paper consists of three arguments: 1) the existence of technologies determines the structures of civilization that are imposed on the world, 2) technologies shape what we do and determine how we do it, and 3) technology, unlike any other kind of thing, seems not to make moral demands of us: it is morally neutral. This means that they offer us the freedom of imposing on something that does not impose back. The introduction of this experience of freedom changes the way we experience the world in general by introducing a new way of relating to the good, namely by introducing the act of subjective valuation. Each of these points implies that technology structurally changes or interferes with our ethical relationship with things, with the result that through subjective valuation the experience of the obligation to act can be suspended.

Example and the Problem

Picture for a moment a person watching a news program on television, hearing about an injustice. Let's say he feels powerless to do anything about it. It is important to realize that he is *not* powerless, since he knows how to *start* to do something about it, how to find out more, what people might advise or help him, and so on, so it is his free decision to do something else and *not* about that. There are two paths this decision can take: if there is such thing as conscience, when a person feels or sees injustice he will feel an impulse to act—"that is wrong! That should not have happened!"—in the form of a righteous outrage. If he chooses to do nothing to remedy it, this impulse is not expressed. He turns it around onto himself, and becomes outraged at himself, and then cynical about the world. If he continues to watch, his conscience will continue to press for action, and he will become more and more bitter.

The other path offers him a simple solution: he turns off the television, removing the source of his irritation, or changes the channel and distracts himself with something else. In the remarks that follow it may seem like I am concentrating on this second path, but I am addressing both, because, as it seems to me, they are the same phenomenon. The situation is defined by a tension between justice and control: in the first path, a man feels obligated to act, but powerless, in the second, he avoids his obligation by deciding what he experiences. In what follows, I will

argue that technology—in this case, the television—determines in advance that these are his options. I will argue, further, that this means technology changes our experience of and therefore our idea of the good.

Technology imposes

To understand this point, we need to take a step backward. The analysis that follows is a re-interpretation and an extension of the work of two of the giants of the Canadian School of Philosophy of Technology: George Grant and Marshall McLuhan. Grant observes that the common opinion of technology is expressed in the phrase "The computer does not impose on us the ways it should be used." This phrase seems so obvious that we hardly realize that you would only say it to someone who was trying to express a feeling that computers *do* somehow impose on us. But Grant argues, as I shall here, that computers, and technology more generally, do impose on us. I shall develop Grant and McLuhan's analyses independently using examples, but shall draw different conclusions.

The standard line on technology is that it doesn't control us. This is expressed in a sentence that, though few people remember having actually heard it, somehow everyone already thinks is obvious: "The computer does not impose on us the ways it should be used." The task of this discussion is to show that this statement is false in just about every important way, and that the one way that it is true produces a profound change in our moral experience of things. I'll do this by going through the sentence in order: 1) "The computer does not impose on us…" 2) "the ways" to use it, and 3) what we "should" do, that is, our experience of ethical obligation.

How could a computer possibly impose on us? It imposes, first of all, by what is required for it to exist at all. Every piece of technology has material preconditions: you don't have a single computer, made straight out of the rocks and trees. The computer there presupposes a whole industrial complex: moulded plastic requires factories to mould it, oil refineries and oil; the silicon and conducting metals come from mines, digging technology, and social structures among miners; the batteries require factories, chemicals and electricity to charge them, which means more coal and oil, water dams; these materials require transportation, therefore roads, ships, rails and all the materials, technology, social organizations, infrastructure, maintenance, and city layout. The computer there presupposes a whole industrial complex.

But you will notice that we have left a lot out. You don't just need materials, you also need cultural conditions to be met.[1] You need a science of a very specific kind that has experimented with, theorized and understood what electricity is, how to generate and transport it, how to control and put it to use. You need people to design and oversee the impressive logistical feats that bring all the materials together at the right time and in the right condition through diverse forms of transportation, and the hierarchical systems of human interaction that make precise control of large-scale logistics possible at all. You need people to have invented the assembly-line, money, economic systems and marketing that make producing computers profitable. Your computer requires public policy to manage roads and trains, make and enforce land-use rules, it requires international relations to secure materials and energy. Your computer requires and is part of an entire socio-cultural-economic-political structure of exquisite complexity. And we have not even mentioned yet the companies that research and design and produce the hardware and the software, the university courses in computer science, mathematics and logical systems, the human factors researchers for ergonomic design, and enough digital content to make computers useful.

When you buy a computer, then, you are buying a "package deal" that includes a substantial portion of contemporary civilization. You can't put a computer in your bag or a tea-bag in your cup without these things imposing their structures on your world. In a word, by choosing your computer, you necessarily choose a technological civilization. For these technologies to exist at all, a civilization of a very specific type must be imposed on the world. Grant expresses the situation this way: a given piece of technology does, in fact, impose on us because it cannot be extracted from the civilization-complex that produces it.

Further Implications of the Analysis of Preconditions

An important corollary of this analysis of preconditions is that every piece of technology has, built into it, a certain kind of community and way of life. You can't have a potluck via cell-phone; a nomadic tribe would not own a dishwasher, and they certainly would never produce one. A technology excludes certain forms of community and includes or requires others. This means that technology carries with it a concept of justice and the good.

---

[1] Grant calls these spiritual preconditions.

The Shape of Technological Communities and The Production of New Media

We have only looked at the way that for a computer to exist at all, a certain civilization must be imposed on the world. Marshall McLuhan takes the analysis in this complementary direction: he does not look at the preconditions of technologies so much as the effects of using them. In using a technology not only do I affirm and promote the community necessary to create it, and therefore its principle of justice and idea of the good, I also affirm that human beings will be organized in the ways that the technology produces— factories and corporate headquarters to produce and maintain railroads, mobile offices appearing because of mobile communication technologies. I affirm that people will devote themselves to maintaining and improving the technology, in just the same way that when I buy a house I am implicitly choosing to maintain or even improve it.

Two other comments will be useful: a technologically complex civilization requires upkeep, begs for improvements in efficiency, so as a whole we devote a substantial amount of work, perhaps most of our work to maintaining technology, and much of our technological imagination to improving it. We are doing this, for example, when we are cleaning out our inbox, steering our bicycles, washing clothes, managing playlists on our ipods, fixing our cars, cleaning our houses.

Why does using a technology commit me to working on the technology? Because we live with technology and respond to the changes it accomplishes in our lives. But second, the development of technology—which McLuhan calls media—proceeds from two sources: need, and the existing technology. He argues that invention does *not* proceed mainly through figuring out what we need, but through realizing what we can make with what we've got. Existing technology is overwhelmingly the source of new ideas. Who needed a camera before people figured out how to mass-produce them? Who needed an iPhone before they started selling them?

The first source of new media, then, is our need to relieve pressure on our organism. We rebalance ourselves by displacing a pressure onto a medium, using a lever instead of arms, a car instead of feet. The second and more powerful source of new technology is the structure of the media themselves: a car needs roads and brakes, and in general technologies require infrastructure and servomechanisms to control them. Moreover, media suggest new hybrids: the combination of radio and telephone leads to wireless networks; computers, recorded music, and batteries suggest iPods. Thus, most innovation occurs *not* because there is a perceived demand,

but because someone realizes that by crossing two media something new becomes possible: there was no demand for movies before the invention of factory-produced colour-positive film.

McLuhan shows that the invention of the motion picture, and its child the television, puts new pressures on us, ranging from the spatial logistics of the drive-in, the Cineplex, and the living room to the invention of food we can eat without paying attention, to the steady-cam to avoid making viewers nauseous, to the development of a new and intensified set of visual and audio pattern-recognition skills. Since the production of new media puts new pressures on us— not to mention on the living world—the fact that most innovation is suggested by the structures of existing technology means that the progress of invention is risky.

Let us see how these two sources interact in a single example. Imagine that you are trying to tear a hide from the body of an animal: you create a sharp edge to make it easier (first source). You then figure out different ways to improve its sharpness and keep its edge. But notice that the tool is not limited by its use, but only by its abilities: it is *these* abilities which determine the development of the technology: since all a knife does is cut, eventually it will cut you, eventually someone will use a knife to kill. We will develop two edged knives, swords, arrows and then armor to protect from these. People develop better forms of cutting in response to armor, such as bullets, and bombs with shrapnel. The result is that we don't have very much control over media creation: our need to rebalance ourselves might drive it, but the structures of our media aim it. McLuhan points out that we are, in this way, the means by which media reproduce: we are "the sex organs of the machine world."[2]

The Way Technology Shapes the Possible World

Let us return to Grant's analysis of the phrase "The computer does not impose on us…" We have seen very clearly that computers do, in fact impose on us because, first, they cannot be extracted from the civilization-complex that produces them, and because, second, computers dictate how that complex, having produced them, also devotes itself to maintaining and improving them.

But surely, you will object, technology does not force us to use it. Furthermore, even if we do use it, surely it does not tell us how we have to use them. Doesn't this seem blindingly

---

[2] McLuhan concentrates less on this kind of itinerary of a single technical form, and more on the effects of a *given* medium, but he accounts for both.

obvious? I am going to argue that, yes it is: *blindingly* obvious. In fact, technology shapes what is possible for us to do, and limits the ways we can do these things.

Does technology determine the way we use it? Can't we use it however we want? When people normally think about these things we make a serious logical error. Here is the argument:

The computer does not force me to use it

   a) *therefore* it does not control what I do.

   b) *therefore*, I can use my computer to do whatever I want.

Neither of these follow, not even from one another! Consider the following examples: you can't use a bicycle to write a Christmas card—you can only use it to propel yourself from one place to another; you can't use a television to remove someone's appendix—you can only watch and listen to it. You get the idea: you can only use a computer to do the things that a computer can do. Yes, you can indeed use a computer to do whatever you want, as long as you are using it *in exactly the ways that it allows you to use it*, to do *just the things it allows you to do*.

Put otherwise, the computer offers you a limited set of possibilities, such as sending email or looking at pictures. But there's more: you can only do those things by doing *exactly what it requires you to do*—specific sequences of keystrokes and clicks over a certain interval. Far from letting you do whatever you want with it, you can only do with it 1) what it is capable of doing, 2) in the way it is capable of doing it. So the result is overwhelmingly this: the computer tells us how to use it, it imposes on us the ways it can be used.

Immediately we want to ask: *why don't we notice* how highly determined our actions are by our technologies? Why do people say you can use a computer to do *anything you want*? I think people make this error when they do not distinguish between what it enables us to do, and the way it determines how we do those things.

In any situation, the world presents to you things you can do: a tree offers you shade, a chair offers you the possibility of sitting down. Imagine you are sitting on a train, and you happen to put your hands in your pockets, where your cell-phone is. You think "I could call my grandmother, or listen to music, or send a text message to say when I'm going to arrive." It offers you a particular set of possibilities

Technology shapes your experience of the world by lighting up ways you could act. This affects the very character of the world by opening it up to your action: more things are at your disposal, new things are ready-to-hand.

Put otherwise, a cell-phone *offers you your own freedom* in the shape of its ability to call or text someone. But you can only accept this new mode of freedom by doing exactly what the phone 'tells' you to do. So the reason we don't notice how technology determines how we act, is that we are distracted by or absorbed by the chance to do something we couldn't normally do.

But these very possibilities come to impose on us—a cell-phone promises you access to people at any time anywhere, so having one makes you available too: when someone calls your cell-phone, you are expected to pick it up. Because you are capable of picking it up, not answering is already an act of communication.

The Original Example

Let us see how this works in the example we started with. A man is watching the news on television, and he feels outraged and obligated to act, but powerless. What is the role of the television?

First of all, without it, he might not normally see so many things that inspire his sense of justice or morality. But this is accidental to the structure of the television. What it necessarily does is put something before him with which he cannot immediately interact, in this case, a call to act to which he cannot respond by watching the television. Let's say it is the earthquake in Haiti, or the rigged elections in Iran, or the State of the Nation speech. He will have to make a phone call or leave his house to do something about it. He would have to do much more to act than he would if he was at the scene at the time.

So even if the television makes it possible for him to learn about more events that inspire his desire to act, it at the same time and in the same way takes away his ability to respond to them. His powerlessness is built into the technology.

Second, the television puts within his control what appears to him: he can decide whether or not the injustice appears to him at all. If, by contrast, he saw someone being beaten on the other side of a parking lot, he would not be able to decide whether or not it appears to him, he could not get rid of or turn off the situation or change the channel, the demand for justice would be upon him; all he could do would be to watch, to intervene, or to walk or run away. But running away, he is removing himself from a situation that places demands on him, not removing

it and its demand to leave his own situation unperturbed. By contrast, he could turn off the television or change the channel. In the frame of his experience, the technology offers him the ability to decide what is part of his world and what is not.

If this analysis is right, it means that the source of the powerlessness the man experiences is the very same as the source of his ability to control what appears and what does not: the television! In exchange for the power it offers him, he loses the ability to act in other ways. The television offers him control of what appears in his world, but in the same stroke takes away the ability to respond to a world that is at first out of his control, and which puts demands on him. So the man watching injustices on television is put in advance into a specific relationship with the ethical demand its content places on him. To act, he would have to step away from the televised evidence of the injustice, out of the medium that frames it, divorcing himself from the immediate evidence of the injustice. Or he could do the easier thing: make the injustice go away by changing the channel. The result is that these features of television will structure his habits, and thereby shape his ethical character.

This is a general structure of technology. It is like the Spanish proverb that Grant quotes: "Take what you want, said God, take it and pay for it." By using a piece of technology, a person accepts a specific kind of agency, and gives up other kinds. This means that technology changes both how we experience ethical demands, and the way we are able to respond to them.

There is one further thread that we have not followed to the end, to which I want to return: technology offers us our own possibilities by giving us the ability to do new things. I want to argue that it changes the way we think about and experience our own possibilities, and therefore our relationship with the good in general.

Further Implications of the Analysis of Possibility

Let's step back for a second: not only does a technology depend on an array of preconditions that presuppose certain forms of community, it is the expression of what these communities value. Technologies emerge from specific forms of civilization, so the values that belong to this civilization are exactly the values responsible for the existence of its technology. This is why we are predisposed to value the things that the technology offers to us to do. Like a door-to-door soap salesman, a civilization convinces us to value all the things the product can do; and like a car salesman, it recommends whatever it comes up with. Our culture makes producing innumerable photographs valuable at the same time as it produces the cameras that make this

possible; the civilization that produces the nuclear bomb values its possible use and wants other countries to do the same. This means we are not in a morally neutral position when we try to decide the use of technology: we are inclined to use it.

A common idea of Freedom vs. justice as owing or imposing

Before I go on, let me summarize what we have seen so far: even though you do not have to use a given piece of technology, we have shown that the existence and use of technology imposes on us, and imposes a certain conception of community and therefore of justice and the good. We have also shown that technology shapes what we do by offering us things to do, and it determines how we do those things. That is, we have shown how technology imposes how it *could* be used, and that it *should* be used for the things it is made to do. We have seen that the *use* of technology changes our relationship with the sources of ethical demands in our lives. Does technology change the way we think of ethical demands in general? I have argued that it does, not by telling us what we should do in a particular situation, but by changing the way we experience obligation: the remote control ties our hands even as we pick it up.

But what about the way we experience the moral character of particular situations? By a bit of a detour, I'm going to show that technology does not give us specific instructions on what we should do, but that instead it changes the way we experience obligation.

Someone might express their concept of freedom this way: "You can't tell me what to do. You can't tell me what's good for me: I decide what's good for me." This should be a familiar enough phrase, perhaps yelled at the top of her lungs by a teenage girl to her parents. What does it mean? It seems to mean: you can't impose on me. I decide what I am doing. She is claiming as her freedom a right to self-determination.

Since action determines how things are in the world, the idea that I decide what to do, and that things don't impose on me implies that freedom is this: *I impose on things that don't impose back*. I impose on things to which I owe nothing. The concept of "owing" or "being obliged" indicates what our concept of justice is and therefore our concept of the good. We use the concept in phrases like "I owe it to you to do such and such," and more often, "you owe it to yourself to…" have a vacation or some such thing.

Grant points out that our way of thinking about justice has changed in the following way: the word "should" used to mean "be obliged to" and Chaucer and others used it intransitively, for example in the phrase "I should to god" or to my country. This means that God or country is

what governs what I ought to do: these are the unconditional principles of my morality. I have no choice but to serve them.

By contrast, we now use the word 'should' to imply something conditional: "I should do my homework" or "I shouldn't eat any more chocolate cake" seems to be followed by the word 'if' or 'but…': "but I would rather," or "but just this once…". In other words, now 'should' depends on a condition that I determine: "I should visit my grandparents" *if* I want to make them happy. I am the condition and organizing principle of morality.

The moral neutrality of technology is not morally neutral

Now, it is commonly assumed that technology is morally neutral: it is not guns that kill people, it is people that kill people. What is this moral structure, in which technology appears to be morally neutral?

First, the source of this idea of neutrality is merely that a piece of technology is a tool: technology does not act on its own, we think, so like a rock it cannot have moral properties. The existence of a gun cannot compel me to shoot someone. Its neutrality consists in the fact that I am the one who uses it. Therein consists the moral neutrality of tools: they do not use themselves.We have to admit this is so: a chair waits to be sat in, a computer sits there ready to be used. But this is the *only* part of the thing or the situation that is neutral. Technology has no meaning or purpose or function apart from its use.

Therefore, *second*, exactly because this piece of technology is no more than a use object, its very moral neutrality *implies* that it is *not* neutral when it comes to *my* action because, unlike the other kinds of things in the world, *all it does is suggest my action*, it offers me power. The very moral neutrality of technological objects is a positive and problematic moral structure that reconfigures morality in general.

The neutrality of technology is supposed to be reduced to my decision to use it or not to use it, the technological object completely undone and encompassed by my agency. But this is not what happens: the technological object is indeed lodged in my agency, but also extends beyond it and reconfigures it; it has a different structure than my agency: it is a thing in the world. It has properties independent of me, but these very properties are for me, about me, directed at me. When a tool points toward my use of it, its being, as Aristotle points out, is the possibility of my activity.

When I walk out into the forest, I find winging birds, spreading ferns, bugs digging under rocks, flowers—living things with their own purposes, their own ethical character. I can also engage them, walking down paths, smell them, brush past them. The world is full. When I walk into this empty room, instead of things with their own being and their own ethical character, these very things in the world turn my thought back from them toward the things I can do. From all sides I get only my possibilities presented to me. I am the only inhabitant. These artifacts are hard to think about, because they are not fully beings, because secretly their being is me—more accurately, because their being consists of *possibilities*—mine—that are not yet, not part of the world.

Technology as Our Relationship with Beings in General

Now, when I cannot or do not use a tool any longer, its uselessness affects its very being as a tool: when my toaster breaks, I throw it in the garbage: I throw it in the garbage with no remorse, because though *it owes its existence to me and my freedom*, *I owe it nothing*. I impose on something that does not impose back; I impose on something that is morally neutral. But this is the idea of freedom that we saw was expressed in the phrase "Don't tell me what's good for me: I decide what's good for me." This is the common idea of freedom as self-determination.

This is not an accident. Technology is the only category of beings for which this is the case: Only when I use technology do I impose on something to which I owe nothing.

Compare a piece of technology, then, to a chicken or a cow. Many meat eaters, when asked if they would or could kill a chicken or a cow, would say they would not or even could not. Until we slaughter them, it is totally clear that the animals have their own lives and purposes: they seek what is good for them. Somehow (the explanation of which would constitute ethics) this makes us aware that taking an animal's life or subjecting it to our use matters, that we are *obliged* to the chicken for the nourishment we are taking from it by force. We would be imposing on something to which we *owe* something, because it does not exist for us, but for its own good.

This is in principle the same for the experience of plants, which also have goals and purposes of their own. We are interested in plants accomplishing those goals and obliged to them for doing so. If we were not obliged to them, we would not be repulsed by the idea of engineering plants to grow human kidneys, ears, or eyeballs.

You will object that rocks and water and in general things that we normally consider to be inanimate must be lying there useless and purposeless, and therefore awaiting or at least indifferent to our use. I argue that they are not indifferent and awaiting us, because we only ever experience them as part of the projects of living beings: we live on the surface of the earth, where almost anything that is visible is already part of the living world. The water is teeming with microbes and fish, the rocks are coated in moss, soil is filled with roots, caves are slimy with fungus and bacteria. We never, or almost never, encounter raw inanimate objects. Instead, we encounter the rocks and the water and the earth as already part of the living world, to which we are obligated. So when we do encounter inanimate things, we are more inclined to experience them as part of the living cycle. A decomposing stump is not indifferent because it is dead, it is being taken over by fungi and inhabited by bugs. So is the dirt and the water and the rocks. The oxygen in the air is produced by plants, and it is the water in and on living things that accounts for most of the evaporation that makes clouds.

If these considerations are sufficient, technology is the only category of thing that lies there awaiting our use, to which we owe nothing. But we extend our experience of technology to the rest of the world: we think that other things, are, like tools, *there waiting for us to use them*. This is perfectly expressed when we use the word 'resources' to refer to rocks, water, plants, animals, air.

Technology, then, is not just a particular object, it is our concept of beings in general; it expresses our relationship with them and therefore our position in the cosmos: to the extent that we take beings to be resources lying there awaiting our use, we are *homo usura*. This is a change in the idea of the moral value of the world and our place in it; a change in the idea of the good in general.

If the value of things, and if their mere appearance on the television set is up to me, then by an act of subjective valuation it seems I can suspend the experience of the obligation to act. I would hope that this only appears to be so, but even then, the formation of a person's character in the presence of such a possibility does not leave me optimistic. To the extent that I experience the world as an array of resources at my disposal, I am responsible for the value of things, since they have none in themselves. Now, when the value of things is determined by free individuals in

the absence of compulsion, we call this value *subjective*. It follows, then, that technology introduces the concept of subjective valuation.[3]

Whether it is dominant or not, the introduction of subjective valuation as a citizen in the realm of moral consideration changes the character of the dwelling-place that is the whole of ethical life. Technology changes, in a word, the ecology of morality.[4] For by deciding what imposes upon him and what does not, the subject can suspend the obligation to act.

The Inclination to Use Technology

As a system of value, technology reinforces itself. We can see this if we start with the relationship between technology and civilization. Not only does a technology presuppose certain forms of community, it is the expression of what they value. This means that, like a car salesman, a civilization recommends whatever it produces, and like a door-to-door soap salesman, it convinces us to value all the things the product enables us to do. Technologies emerge from civilization, so the values that belong to a certain civilization coincide with the values responsible for the existence of the technology around us. This is why we are predisposed to value the things that the technology offers to us to do. The technology mirrors and shapes our values by expressing them: when our culture produces digital cameras, it creates or intensifies the value of producing innumerable photographs at the same time as it produces the ability to do so; the civilization that produces the nuclear bomb values it. This means we are not in a morally neutral position when we try to decide the use of technology: we are inclined to use it. Again, if we think that chickens, corn, soil, and ocean are resources, we are inclined to exploit them. They are destined for our use in the same way as a bottle of cola.

Conclusion

Technology is not neutral because it is meant to be used: a gun is meant to be fired, a saw to cut. The being of these objects, as Aristotle points out, is our activity of using them. So technology imposes on us by offering us what we can do, like shooting or cutting, by setting in advance the shape of the world of our possibilities. And it gives us the experience of a certain kind of freedom, for when we use it we impose on something to which we owe nothing. To the

---

[3] The idea of subjective valuation could have been produced by millennia of people living in environments that are primarily artificial—made up of objects whose being is my use of them—instead of natural. One could even define civilization as any community for which artifice has replaced nature as the location of human activity.

[4] Of course, ecology is derived from the same root as economy, namely *oikos*, which means home or dwelling place.

extent that we identify ourselves with this freedom, we are inclined to use technology. We extend this experience to other things, so it becomes the model for our relationship with beings and for ourselves: beings become resources waiting for us to use them, their very being pointing toward our power to use them.

You will have noticed that the word technology has appeared in three aspects in the course of this discussion: 1) the artifact here before me, with the civilization-complex that produces it, 2) the culture's esteem for certain kinds of action expressed through the possibilities the tool offers me, and 3) the structure of value by which I impose on a thing but owe it nothing, that is, the absence of obligation at the heart of the common conception of freedom.

You will also have noticed that these actually come to the same point: technological civilization is a world populated by artifacts and the systems that produce them, but this implies that it is also the way that the world appears to us through the things that we can do, and the strange freedom from obligation we experience as we do them. Technology shapes our community, steers our values, conditions our experience of ethical demands, of the ethical sense of things in the world, and of ourselves. It changes our idea of the good.

Selected Bibliography

Grant, George, *Technology and Justice*, Concord, ON: House of Anansi Press, 1986.

Grant, George, *The George Grant Reader*. Toronto: University of Toronto Press, 1998.

McLuhan, Marshall and Quentin Fiore, *The Medium is the Massage*, Corte Madera: Gingko Press, 2001.

McLuhan, Marshall and Quentin Fiore, *War and Peace in the Global Village*, Toronto: Bantam Books, 1968.

McLuhan, Marshall, *Understanding Media: The Extensions of Man*, Corte Madera: Gingko Press, 2003.