Modern Technology: Servant and Master   by David W. Gill (2003)

In the popular mind "technology" usually means things like machines. Technology is what engineers and techies give us: telephones, fax machines, automobiles, electric lights, water purification plants, compact disc players, jet planes, and so on.   It may seem odd to question whether technology is our master or our servant. All the tools and gadgets available today are presented as things that will serve us and make our lives better (or at least more interesting). Nobody is forcing you to buy and use a car or cell phone or power saw. Of course, we might say that somebody is becoming a "slave" to "Joe Millionaire" or to e-mail or to CNN's endless stream of "info-tainment" but we are still using the term fairly loosely and freedom from such "slavery" seems just a touch of a button away.

How Technology Serves Us

For most of us, most of the time, technology is a good thing. It has served us, and even liberated us, in two ways.   First, technology has served us by creating *tools* that vastly extend our human powers. By this I mean *construction tools* like hammers instead of rocks, then jack hammers instead of sledge hammers . . . *medical tools* like x-ray machines, prostheses, and pharmaceuticals . . . *transportation tools* like planes, trains, and automobiles . . . *communication tools* such as television, compact disc players, computers and fax machines. The list of technological tools is awesome. The ways these tools have served us is spectacular. Technology helps us fulfill our basic survival needs. It has often made our lives healthier and safer and our work more productive.

Equally important, but noted less often, technology has served us by its *methods.* Technology is not just tools, it is a method---the way of rational analysis, of quantification and measurement, of empirical testing, of innovation of new ways of approaching problems. In the material world of things, technology is the method of rationally analyzing how to move things from one place to another, how to multiply, divide, simplify or combine various elements and factors. As such, technology helps us break down a production and distribution process into its constituent parts and then restructure the process toward greater efficiency.

And the method that works with automobile assembly lines and other material processes has also been applied to human relations as in the conduct of business meetings, the creation of effective advertising, and the development of psychotherapy. Technology is the creation of better *means*, in fact, of the "one best means," in every field of human activity. Modern bureaucracy, for example, operates under the rule of technological method---even if in practice it often is far less efficient than we would like.

So don't get me wrong: what follows is not intended as a call back to the jungle and to irrationality, or to just give up and submit to nature, as though nature itself were God. Technology is often a good thing and a valued servant of human life and purpose.

Technology's Trade-offs

But the services rendered by technology come at a price.   We must be careful not to deny or ignore the price we pay for technology. We should always try to identify and consider its full, real costs. Specific technologies always have *both positive and negative aspects.* It is not helpful to say that technology is neutral (or to say that it is exclusively evil or good); it is *both* good and bad. It is often said that technology is neutral and only its use or its users are good or bad. The users carry all the moral responsibility in this view.

Now certainly you can say that, for example, a gun in the hands of a crook will be put to bad use, and a gun in the hands of a good person can be put to good use. But it is the technology itself that makes possible these uses; one should not simply invent guns without weighing these outcomes and deciding

whether to proceed. Guns "suggest" shooting---just like hammers suggest pounding and calculators suggest counting. If you invent, sell, or buy a gun you bear some responsibility for what is done with it.

So too, the development of automobiles not only results in freedom to travel but also in pollution, in serious injuries to people, and in the kind of glass and steel encased anonymity that facilitates social breakdown. The good possibilities of television are accompanied by the loss of human conversation and a diminishing capacity to entertain oneself in a spectator era.

Technology often functions as an *amplifier*. The scope and impact of our actions can be vastly amplified by technology. But is this neutral? Or all good? Is it good that more people are able to get good information about Jesus Christ, or hear great music, or personally visit other cultures because of technology? Sure. But remember that these same technologies enable the broadcast of both truth and lies. Furthermore, the human need is often less about quantity than it is about quality (of information, music, travel, etc.). "Infoglut" can be as big a problem as "infofamine."

Technology often brings economies of scale and efficiency. But technology's true cost is rarely appreciated. New technologies require trained technical support to be hired and available. They require time for learning by users. Technologies don't last forever; new upgrades come along; old things breakdown. Did we remember to factor in these costs when we asked "how much?"   Old computers and automobiles need to be disposed of. Is it cost-free to recycle them? Not very often. Did General Electric factor in the cost of cleaning up the Hudson River after their PCB dumping killed it? Was this cost factored into the evaluation of how much to pay GE CEO Jack Welch? No, this cost was dumped on the community, the fishing businesses, and the next generations (fortunately, it looks like GE is now being forced to pay for the clean-up). Is the cost of repetitive motion injury (e.g., carpal tunnel syndrome) to data entry people factored in to computerization costs?

There is also a huge trade-off in human skill when technologies come in. For example, medical personnel acquire sophisticated expertise in reading MRI and bone-scan analyses---but they lose expertise in touching and in listening to patients. Patients themselves, e.g., pregnant women, gain some things, e.g., fetal monitoring readings-----but gradually lose the ability to know or care for their own bodies and health.   I am not saying we should go back to the old days, mind you, but when patients become totally dependent on technology and technological experts, something has been lost.

As cell phone usage grows, people are losing the ability to listen attentively to one another. Why? Because you don't need to pay attention to what, for example, someone asks you to buy at the store. You grunt "yes" but weren't listening much. Then as you walk the aisles of the store you get out your cell phone and call home to ask what it was that you were supposed to buy. Maybe this is not a huge loss to our grocery shopping lives but it symbolizes a general phenomenon: when you can always make a quick call on your cell phone you lose the need and then the capacity to pay attention, focus, and remember.

Similarly, when you can always fire off more follow-up e-mails to someone, you are less careful to be sure you express yourself to that person. If you had to type or hand-write a letter, address an envelope, and take it to the post office, you would be more careful in your expression. When I receive a personally typed or handwritten letter, I read it over thoughtfully and appreciatively. When it is one of twenty e-mails from my colleague, I have no idea if he meant them all as equally (un?)important. I relax and focus my attention elsewhere, knowing we can always swap a few more messages to clarify things.

But what is the cost of all these emails and phone calls in money and in time? Is the gain worth the price? I use email a lot and experience both its benefits and costs. I have resisted getting a cell phone, though I may yet break down. The point is to be aware of technological costs as well as benefits and take aggressive steps to control and deploy it in an appropriate way.

Edward Tenner's great study *Why Things Bite Back: Technology and the Revenge of Unintended Consequences* (Knopf, 1996) provides almost three hundred pages of historical evidence of such hidden costs of technology. For example, computers were supposed to lead to the "paperless office." In fact the use of paper in computerized offices doubles. Why? Nobody saw it coming but it is so easy to print out

multiple versions of a document as you improve it. I think my Ph.D. dissertation might have been typed (with pain and care) all the way through three times on my typewriter in the late 70s. My more recent books have been printed at least five times because of the ease of computerized changes (I think they are better books, because of this process, by the way, but we need to face up to the cost).

As technologies for football equipment (e.g., helmets) have improved on safety, football injuries have increased. Why? Because players play more recklessly, relying on the improved safety of the equipment. Improved safety regulations for small children on airplanes (each child over two must have his or her own seat and seat belt) has led to more injury and death for children. Why? Because the safety requirements on planes meant that parents had to buy tickets for their small children and strap them in rather than let them sit on their laps---and as a result more families travel by cars, which, even with seatbelts, have higher injury and death statistics than airplanes. In agriculture, the introduction of pesticides and herbicides has often killed off one problem only to make way for much worse problems that used to be held in check by that first "problem."

Technology (transportation, communication) has enabled globalization. While this has brought great blessings---better intercultural understanding, jobs and trade to depressed areas---it has also brought great problems and challenges.   Global terrorists operate alongside corporate developers, global peacemakers, and environmental activists. The blessing of American democratic ideas is exported alongside the curse of Hollywood's offensive images and idiotic messages and the bullying presence of today's corporate robber barons. The overpowering of local color and cultural particularity by a homogeneous "McWorld" culture is a terrible price to pay for the ostensible blessings distributed by McWorld. It has all of the dangers present in the replacement of local agricultural biodiversity by agribusiness monoculture.

Inventors, manufacturers, sellers, and users of technologies all need to get serious about this matter of technology "trade-off."   Technology is often a great choice---but it is sometimes a terrible thing. In our present world crisis, should the inventors, manufacturers, and sellers of advanced military technologies to Saddam Hussein, Osama Bin Laden, and others of their ilk, be given a free pass morally (or legally)? What they have done is not neutral. It is predominantly bad---and their technology business profits have come at a huge cost to all the rest of us. Why are they not being held accountable? If you give a loaded gun to a child, are you not responsible when it is used? When you give the car keys to a drunk, do you have no responsibility? On a personal level, when you put a television set at the center of your family life, have you no responsibility when a subsequent lack of family communication and cohesion results in disaster?

It is time to press this issue. Technologies amplify existing potential for both good and evil. Technologies produce serious and far-reaching impacts that are often unanticipated. Those who invent them, manufacture them, sell them, buy them, and use them are all responsible when damage results---just as they deserve some credit when good results.

How Technology Masters Us

So we live in a fundamentally *technological milieu* or environment, not a natural or social one. Technology often serves us by providing us with a wide and growing range of *tools* that greatly extend our human capabilities as well as a powerful *method* of approaching all human problems and possibilities, the method of rational, quantitative analysis, the search for measurable effective means. It is utterly critical however to examine the trade-offs, the costs and benefits, of particular technologies we bring into our lives.

But I want to step back from the issues raised by particular technologies and look at three aspects of the technological phenomenon as a whole.   First, technology in the modern world displays the character of *a necessary, almost deterministic force*. Technological developments create technological problems which require further technological responses *ad infinitum*. There has been a qualitative shift from earlier eras in which specific tools and techniques were developed through the freely chosen creativity of human beings to meet specific, limited objectives. Technology now obeys its inner logic of development as

rigorously as we used to think that nature obeyed its own laws. This necessity is especially visible in a larger view of the technological complex as a whole. "If it can be done, it will be done; indeed, it must be done." Technology carries its own imperative to further development. At this point technology is no longer a simple servant of humankind but its master. This apparent inevitability of technological expansion must be challenged. We must assert our freedom and learn to say "no" once in a while.

Second, technology today is *universalistic*, in two senses: it invades every area of the world and every aspect of human existence. This is what Neil Postman calls "technopoly," technology as a monopoly over all human affairs. Part of what this means is the *geographic universalization* of technology. Every corner of the world is affected by technological intervention. Global development means technological development. Traditional ways of agriculture are replaced by technological ways. Traditional forms of governance must be replaced by bureaucracies. Or else! Or else those who resist are condemned to live at best as an underclass, at worst as the refuse dump of the globally dominant technological complex.

But technological universalism or technopoly also refers to *the invasion of technology into every aspect of our lives. Politics* and campaigning is technicized; *sport* and entertainment; *public relations* and fund-raising obey technological laws; *churches* employ public relations techniques to build their memberships; even prayer and spirituality are analyzed and taught as a set of rational techniques for manipulating God and the self; even *sexuality*, the last domain of the truly wild and mysterious, has never been so technicized---not just in terms of reproductive or prophylactic technologies but the technical analysis of the sex act itself. *Our physical space* is dominated by technological instruments; *our psychic space* is dominated by the method and values of technology: rationality, effectiveness, measurable success. We need to resist this universalist pressure and guard times and places in our lives that are free of technology.

Third, technology now serves virtually as *the sacred* in our lives. The sacred, the divine, the god, is whatever occupies the very center of our existence, giving our lives unity, direction, and meaning. The traditional gods have mostly been toppled and replaced by technology, at least in the West. Traditional gods may receive lip service in church or in private conversation but in practice, on Monday morning if not before, it is Technology which we serve. It is in Technology that we hope for our future and even for our present day salvation.

Another way to express this is by saying we have moved from technology to *technologism.* Adding that "ism" is a way of saying that technological thinking and values have become the foundation, the worldview, the criterion of all judgment. Just as race and sex are good in service of a healthy, holistic human mission but bad when they become ra*cism* or se*xism*, so we could say that the goodness of technology is radically put in question when it is developed into technologism as an all-embracing intellectual, moral, cultural and spiritual identity.

Our values are a direct spin-off from our isms and our gods. "Technogod" commands us "Thou shalt love technology with all thy heart, mind, soul and strength." "Thou shalt measure success always in quantitative terms." "Thou shalt not allow inefficiency in any operation." "Thou shalt not permit anything irrational, nonrational, or suprarational to live outside my rule."

When something or someone is omnipresent, omnipotent, and not subject to criticism, when it inspires and compels our sacrifices and praise, it sounds like a god to me. The question is: is Technology an adequate god, or is it a bogus pretender to divinity that needs to be demythologized and desacralized? Is the Technogod ultimately a liberating, redeeming god or an enslaving one?

Finding Our Way Forward in a Technological Era

The question is "who or what is in control of our lives?" Have we become mere "tools of our tools" as Thoreau asked? Have we in effect made Technology the god of our civilization. Gods always demand some kind of worship in return for the salvation, meaning and direction they offer. If this is so, is this covenant with Technogod one we really wish to make? The worship demanded by Technology has meant lives of frantic absorption into the latest technological thing. Our lives are dominated by the

products and the problems of technology. Our learning is dominated by the acquisition of technological literacy and competence.

Perhaps we can best evaluate this covenant with technology by asking what has been necessarily excluded. And I would argue that what has been lost is the value of the inefficient, the nonrational, the aesthetic, the spiritual, the traditional. Love and beauty, for example, are prostituted and lost when they are made to serve a technological calculus. Relationships with family members and colleagues are seriously distorted when rationality and efficiency are the criteria of value.

But how will we, how can we, respond? Let's quickly dispose of three popular responses:
First, some will *deny* that technology is a problem and protest that modern technology is more or less desirable and under control. Denial is the characteristic problem addressed by Aldous Huxley's *Brave New World*. This first response is partly a product of *exhaustion*. We simply don't have the time or energy to stop and take a critical look at the broader dimensions of what is happening to our human life. We are too busy. It is also true that our technological society provides innumerable distractions and opiates to its members.

But it is also a product of *a lack of perspective*. Most of our technologically trained population at large have little significant background in history, not much more in philosophy or theology, and little significant non-western cultural exposure. Yet these are precisely what we need for a critical perspective. We have much knowledge of a certain type; but little *wisdom*. Hence we tend to take our western technological perspective for the only one, though it is by no means the only perspective in the western tradition, to say nothing of the rest of the world.

A second response allows that, while we have some serious dysfunctionality in our technological civilization, we only need more and better technology to resolve these problems. This is the *technophile* response, the reaction of lovers of technology, of *true believers* in technology. The priests and evangelists of technology want to get everyone on the information superhighway---with an integrated office system, linked to our home entertainment and work centers, and to our portable cellular phone and notebook computer. Thus the technological environment becomes essentially airtight and everyone is technologically linked to everything at every moment. But *where is this super highway going*? We have started off at a vast and accelerating pace, but where are we headed? That's the question.

Opposite the technophiles are the third group, the *technophobes*. In the Industrial Revolution these were the Luddites, the band of anti-industry types who wished to smash the machine and return to a more pastoral existence. In our own era, the Hippies of the Sixties made a somewhat similar call to stop the machine and get back to the garden. But romanticism and adolescent anger make a flimsy foundation for resistance, as the subsequent absorption of the Sixties generation into the Yuppies demonstrated. Technological reactionaries are doomed to be the colorful feather in the cap of the technological giant: a dash of color on a giant who moves forward unimpeded.

A fourth response, the one I promote, is *resistance and revolution*. This calls first for a profound *awareness and critical analysis of our reality*: the *reality of the technological maincurrents* under the surface of the ocean of our existence, and the *reality of our flesh-and-blood neighbors*. For such awareness we must stop relying on *USA Today* and *CNN*-type newsbytes---and invest our time in broader, deeper works of cultural criticism, including historical and multicultural perspectives which will give depth and breadth to our own analysis of social and cultural reality. Along with this we will need to turn off the tv, take off the Walkman, turn off the distractions, and carve out time to develop human relationships with a few people around our living and working areas. This means learning how to listen, how to be quiet, how to reflect deeply, how to care.

With this growing awareness, then, we need to *resist*, indeed, to *refuse* the necessity, universality, and divinity of Technology in our life and work. We need to "just say no" to technology at decisive points.

But gods don't easily vacate their thrones. To dethrone the old we need to install a more appropriate one. To begin with, we can resist in the name of Humanity. We need a truer, more robust humanism than

technologism can allow. Our thinking, living, working and playing can revolve around the *sacredness of human life* and of the earth and universe in which, and with which, we flourish or come to grief. Concretely this means that for humanists people are not reducible to statistics . . . that intelligence is not reducible to IQ numbers or degrees held or genetic maps . . .that this living student or friend before me is sacred, and is more important in his or her living wholeness and mystery than any rational calculation could ever account for. To say this is to replace technologism with a robust humanism.

Some of us in the modern West, and most people in the rest of the world as well as the older traditions of the West, would suggest that the strongest foundation on which to base such a humanism, and from which to resist Technologism or any other false gods, is a *theological* one in which the transcendent God who created the universe and humanity is invited back into our sacred space. We theological types would say that humanism is true and good because God has created humans in his own image. Technological civilization tends to promote uniformity and reduce individuals to faceless atoms in a mass society. To mistreat or undervalue a person is to mistreat an irreplaceable child of God. To exploit and abuse the earth and the universe is not merely a technological dysfunction but a serious sin against God and his creation.

In an authentically biblical philosophy of technology, technological creativity and innovation are fundamentally rooted in our being made in the image of a creative, innovative Maker. It is embedded in our nature to want to create and make good, useful tools and artifacts.   Resisting technology as a Master and a pretender to the god place in our lives must thus proceed from resistance (saying No to a Technogod) to *a positive revolution in values* that rebuilds a life in which we celebrate good, life-affirming technology. As consumers of technology, our calling is not to smash the machine but to question it, appraise it in reference to our core mission and values values, and then sometimes say yes to its deployment as servant in our life and work . . . and sometimes, to say no.