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TECHNOLOGY AND CULTURE: HUMANS INVENTING THEMSELVES

William Paul Haas
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ABSTRACT: Since the ancient Greek myth of Prometheus who stole fire from the god, Zeus, humans have been befuddled by their own cleverness. We make useful tools and devices which seem to free humans for higher pursuits only to discover that the unintended consequences demand that newer and even more clever devices be invented. Sooner or later we find out that the instruments of our technologies are shaping our destiny rather than the other way around. Throughout history this struggle has gone on till the present when the consequences of technological progress seem to many to be overwhelming. If culture is the cultivation of the best in mankind, a new kind of challenge faces us.

In its rudimentary sense, the idea of culture is wedded to the notion of prehistoric humans cultivating the soil. When they ceased hunting and gathering, and learned how to plant, harvest and store food humans began to put down their own roots. With the cultivation of the earth came the establishment of habitations and communities, commerce, the alphabet, art, literature, history, architecture, and the evolution of governance and law. Thus the work of mankind fashioning itself into homo sapiens, homo faber and homo ludens. At one with the time clock of nature and with the natural flow of energy, man teased out of the earth what he needed and the earth rewarded mankind with leisure, with the time to think, to wonder, to play and to celebrate all of the ingredients of human culture. And also, with the building of the original tower of Jericho, which evolved from a grain storage function to becoming the first fortress to defend against marauders, there emerges the crude technology of warfare between the haves and the have-nots.

Whenever, however and wherever humans put this all together, they create for themselves a culture. Think of it this way: humans live as individuals, families and communities at the intersection of two lines, one horizontal, the other vertical. Along the horizontal line one event follows another chronologically from past to present to future. History accumulates and unravels, dreams appear and disappear, as do hopes and expectations. Along that horizontal line, the briefest moment is the present, which is almost devoid of meaning except for what can be remembered from the past or projected into the future. Yet the present is the only

existing reality that humans must face.

Humans also live on the vertical line, participating in the whole universe of possibilities all occurring simultaneously in the present. This might be called the ontological line, the line of being. Man not only remembers how one cause leads to another, but he is also capable of realizing that for anything to take place, all causes in the universe must be actually causing concurrently. He asserts himself as a cause among all other causes, not only the passive observer of an overwhelming universe, but as the intelligent and free shaper of event with himself at the center. Man finds himself more or less intelligent, more or less rational, and certainly mortal but there always seems to be more to being than meets the eye. Loving and hating, hoping and giving up, happy but on the verge of tears, the contradictions never disappear. To see himself as a genuine individual person, he might see himself as standing at the convergence of time and being, between the infinite recesses of the material universe horizontally and the infinite simplicity of his spirit ontologically. Also, standing (silently) with mankind at the convergence of time and being is the possibility of God. This vision of culture does not imply that religion is essential to the very existence of a culture but that the evolution of a culture leads to the possibility that God is as real as man himself and closer to humans than they are to themselves. Some cultures embrace God as the once-upon-a-time creator, vaguely remembered but lost in the recesses of history. Other cultures, however, see God as the concurrent cause of all causes causing, as the intimate participant in the richness of all being. And yet other cultures honor a “god” by their silent meditations. Either way, this is about as far as human culture can reach into the mysteries of the divine, yet the technologies architecture, of the printing press, the TV, motion pictures and of the internet have played a roll in both the frenzy of some evangelists and in the spreading indifference to religiosity of all forms.

It seems obvious enough that the cultivation of technological devices follows along the horizontal plane of history one invention leading to another, from the plow to the bulldozer, from the mule to the jet plane. Yet, from ancient times some technological inventions seem to open up the ontological universe, without any religious interventions, wherein humans begin to dig more deeply into themselves, into their own intelligence, their morality, their loves,

their own creativity and even into the possibility that there is more to themselves and to the universe than they imagined. Here is where human ingenuity invents the alphabet, the pencil, the tablet, the printing press, the novel and the encyclopedia, and eventually the computer and everything that goes with it. Along the way, science emerges and grows, as do philosophy, the arts, and theology. These are the instruments whereby humans reach into the entire domain of the knowable and the loveable possibilities of being, pure and simple. In this essay, I will not consider technology, the sciences and humanities as separate elements apart from each other or separate from the enterprises of culture . I will even suggest that the strength and depth of any culture is derived from the interaction of these very seemingly diverse elements.

Uncertainty and Unease

Many significant voices have anticipated that the emergence of our new technological age may bring about the loss or neglect of mankind's highest aspirations. Pope John Paul II sounds this alarm in his encyclical Performing Work. "However, it is also a fact that in some instances technology can cease to be man's ally and become almost his enemy, as when the mechanization of work 'supplants' him, taking away all personal satisfaction and the incentive to creativity and responsibility...when, through exalting the machine, it reduces man to the status of a slave." The warning is well taken, but some observers perceive that the enslavement of the worker has already taken place, not caused by the machine, but by the lust for profits which drives the free market's exploitation of science and technology. Jacques Ellul, the French Protestant theologian, sees an even darker picture in which the technological era destroys everything that is genuinely human, when man becomes part of the mega-machine, truly human relations disappear, beauty is forsaken, social ideals are abandoned, good ideas no longer exchanged and public truth submerged.

George Steiner adds a more ominous twist to the warnings about the dangers of ungoverned technological expansion. In Bluebeard's Castle he asserts that " For the first time... this all-governing axiom of continuing advance is being questioned...The real question is whether certain major lines of inquiry ought to be pursued at all, whether society and the

human intellect at their present level of evolution can survive the next truths.... the coming door opens onto realities ontologically opposed to our sanity and limited moral reserves“ . Jacques Monod has asked publicly what many have puzzled over in private: ought genetic research to continue if it will lead to truths about differentiations in the species whose moral, political, psychological consequences we are unable to cope with? Are we free to pursue neurological and psycho physiological spoors concerning layered, partially archaic forms of the cortex , if such study brings the knowledge that ethnic hatreds, the need for war, or those impulses toward self-ruin hinted by Freud are inherited facts?...It may be that the truths which lie ahead wait in ambush for man.” The instruments which make such scientific probing frightening to Steiner and Monod will have to be technically developed as the probing goes deeper and , in their view, more threatening. It appears that they believe that the drive for technological embellishments to satisfy an unhealthy curiosity is part of a drive toward mankind’s self-destruction.

Back to the Beginning

There is nothing new about man’s dissatisfaction with his own cleverness. From the ancient tales about Gilgamesh who tried and failed to escape his own mortality and about Icarus who tried to fly, but got too close to the sun, man has been thinking about how to escape his miseries and how to change his destiny by reshaping himself. Each time humans invented new tools or instruments, such as the wheel, fire, the boat, the spear, even the pencil, the symbol and the myth, etc. they thought they had found the key to the lock of the human enclosure, only to find that the mystery of mankind lay within man himself, fundamentally unchanged by the extravagance of his toys. The freedom of mankind was not to be found in any of the devises man produced, but within the restlessness of his own seeking.

The Myth of Prometheus is one of the most impressive and ancient forebodings about the emergence of the creative human being who thinks he can outsmart the gods by his own ingenuity. Edith Hamilton advises us that myths can be read on two levels, on the outside is the tale itself while on the inside is the real story about the storyteller and the reader. However the myth took shape, it contains a profound human puzzlement. Prometheus fell

from the good graces of Zeus, because he sought to make humans self-sufficient by teaching them how to build houses, how to grow food, how to heal illness, and how to use fire in all of its powerful manifestations. Prometheus was not above playing tricks on Zeus. By stealing fire from heaven Prometheus established the animosity between mankind asserting its independence and the gods hold human in bondage.

Zeus, not to be out-tricked by a mere mortal, devised a clever way to punish human arrogance: he created womankind in the person of Pandora who was to be married to Prometheus' slow-witted brother, Epimetheus. Not to be out-tricked by Zeus, Prometheus gave the couple a box full of misfortunes, which Pandora could not wait to open. When her curiosity got the better of her, she brought down upon the human race all the trouble that Prometheus' cleverness had tried to escape. But there was one hidden surprise, hope, which was the final and everlasting gift from Prometheus to mankind. Thus the myth tells us that mankind has the resilience to keep inventing its future in the face of endless adversity by being clever. That is the trick indeed.

Has Anything Changed?

In recent years much has been written about the emergence of new kinds of tools and instruments which appear to some to threaten the very substance of human values, while the same tools and instruments seem to others to be the greatest advances in human history. The new technologies appear to invade every aspect of human life, ethics, religion, education, politics, medicine and even the arts. The word "technology" has expanded its meaning to include the entire system of interlocking techniques which redirect and reenergize both man's physical labors and now his mental or intellectual efforts as well. Fortunately, there are writers who choose a course between the extremes of condemnation on the one hand and wild enthusiasm on the other, urging prudent caution and the wise adaptation to these new ways of thinking and doing, while maintaining respect for the enduring wisdom of the past which acknowledges the mystery of being human as Prometheus encountered it.. It is in this spirit that this essay is undertaken, namely that of balancing the irresistible force of technological progress with the deepening understanding of the basic claim of mankind to

define its own well-being, materially and spiritually. In a way, the more humanity feels threatened by new gadgets and ideas, the more some human beings, at least, feel compelled to reexamine what is worth preserving and what is expendable. Ultimately the greatest difference between man the inventor and the technology he invents is that man can critique both the technology invented and his own wisdom and foolishness in the use thereof. Wherein lies our Promethean hope.

The Haunting Consequences

This essay has been inspired in part by the casual comment of the German philosopher, Ludwig Landgrebe, who observed that both the capitalist and communist economic systems face the same problem with the advance of technology, and neither politico-economic system is capable of dealing with the major challenge on the horizon, namely, that the common by-product of technology is the increase of disposable time, that is, leisure. From his insight I draw the inference that the capitalist system must deal with the dilemma of having more and more workers with time on their hands but unemployed because of technological displacement. And the workers being unpaid, would be less able to purchase the abundance and quality of the goods and services, which the technology is designed to produce. In other words, the system will cripple itself if by the expansion of technology in all human endeavors while it produces more goods and services than the majority of the people displaced by that very technology are able to purchase or consume.

Similarly, a communist workers' paradise would be hard pressed to manage growing numbers of unemployed and therefore restless citizens displaced by technical progress, whose disposable time would threaten the stability of society. If maximum prosperity in either system depends on maximum productivity, then, it appears, either technological progress must set its pace to take into account its impact on the working (and thinking) classes, or the evolution of technology will be governed by political forces as Marxist, Herbert Marcuse, sees it.

One other alternative would be that societies, both capitalist and communist, would succeed

in turning the growing amount of disposable time into some form of social and personal enrichment. In Marcuse's vision, thanks to technology," The individual would be free to exert autonomy over a life that would be his own, "but the price would have to be the centralized political control of the technological process that meets the vital needs of humans. He assumes, not without reason, that the free market control of technology will lead to the exploitation of the working class. On the contrary, Marcuse believes that the "centralized " political control in Marxist societies" would not prevent individual autonomy, but render it possible." That is easier said than done. So, if there is one simple message in Landgrebe's comment about technology it is that all societies, capitalist and communist, and whatever hybrids emerge, will have to cope with the expansion of "a workless world" bordering on a worthless world.

Alas, in the advance of technological solutions to technological problems, left to the forces of ideological political systems such as Communism or laissez faire capitalism (which hides its ideological control of "democracy"), citizens are offered, from cradle to grave, time-killing and mind-numbing high-tech games to play. The games are designed by experts in the technological systems, who, however, may not even be aware that there might be, outside the realm of technology and empirical science, a richer dimension to human existence and more exciting games to play. Those games bring us back to Prometheus and the search for authentic human existence, back to the cultivation of wisdom, the refinement of virtue, the enlightenment of intellect and the enrichment of all of the arts. There is no more reason to blame Communism for rejecting such humanistic ideals than to blame laissez faire capitalism for the same rejection, and there is even less reason to blame the technology itself which produces more disposable time than either political-economic system can handle. That is the challenge to all of mankind left unresolved by Prometheus

The Question is as Important as the Answer

Thus far I have posed for myself a question way beyond the scope of this essay and beyond the reach of my own abilities to adequately answer. Sometimes it takes more effort to find the right question than it does eventually to answer it. The choice, then, is to identify the

essential elements which help us to better frame the issue and to invite others to explore the reasonable alternatives without dismissing the technological dilemma off hand.

There are some clues to this puzzle in the very origins of human self-determination. Long before Gilgamesh, around 22,000 BC, humans invented the tools to be able to shape a piece of stone into the form of a woman, The Venus of Willendorf. Perhaps the oldest work of human ingenuity or art known, this piece of sculpture embodies the desire of humans to somehow control or stimulate their fertility and thus create a better future for themselves. The human figure hints at the realization of some kind of spiritual force that can be approached if done so skillfully. The little stone figure seems useless until we realize what it took to carve in stone a likeness of a full-bodied woman, not a portrait of a person, but a symbol of all fertility itself and therefore a symbol of hope. The sculptor, in shaping the figurine, without necessarily realizing it was also shaping the future of mankind. The shaping of the idea or the abstraction of fertility and the realization of the power of symbolism, which suggests that there is more to reality than meets the eye, is an astounding accomplishment. This may not seem like much of a technological feat until you realize that it took good tools, wisely selected and shaped, and a good pair of hands, steady and well practiced and a steady eye: it also took a very good mind to propose, 24,000 years ago, such a profound and provocative human accomplishment. The idea of human-controlled fertility took shape and became permanent when the skill to express it in stone was found. By human technique, human nature found itself wondering about its own future.

Thousands of years later, the animal paintings in the caves of Lascaux, from about 15,000BC, tell us still more about how man saw himself as a participant in the whole of nature, not as a mere bystander, but as the shaper of events. The undertaking at Lascaux demonstrates a very sophisticated self-confidence that had been maturing for a long time before the cave project was actually undertaken. Someone had to know how to produce colors from natural materials and how to secure them to the walls of the cave by some medium, how to build a scaffold to reach the high points and how to create portable light for the darkest recesses of the caves. The drawings of the animals in motion reveal a skillful observer of form and function in animal anatomy and suggest sensation, awareness, cunning

and feeling, if not dignity, in the animals. The chips in the stone wall of the painted cave had probably been produced by hunters using the animal images for target practice or for some kind of spiritual conjuring of power for the hunt. Lastly, at the very end of the cave there is a drawing of a wounded animal leveling its horns at a wounded man, which hints that a moral lesson was being expressed, namely, that the victor may well become the victim or that sometimes things bite back.

But, all that cleverness demonstrates the most extraordinary self-consciousness of the team that did the work: they knew how to pool their social skills and to produce one spectacular masterpiece. If one had to guess, there emerged a self-conscious identity, which forms the word “we”: we did it, we know who we are and what we do well, and what we must do to survive. Most profoundly, the self-aware intelligence of the whole project proclaims: “And we know that we know, and that makes us different from everything else.” The animals do not draw us. I have wondered whether this message of common human dignity and confidence is what attracts present day observers to places like Lascaux. What we have in common with those persons over the millennia is what they had in common with each other and what we hope we share among ourselves, the phenomenon we call culture, the sharing of whatever we think we are or have in common. We cannot afford to forget, however, that those weapons and skills for hunting and outsmarting animals worked just as well as weapons of war, man against man. And that notion of belligerence is not outside the concept of culture - civilization spread by conquest.

Of Expectations and Disappointments

In so many words, from the beginning man has been trying to outsmart his mother, mother nature, and his brothers, but he has been only smart enough to be discontented, not smart enough to escape his own limitations. Nor was he smart enough to preserve the peace he was willing to kill for. This might be considered the fundamental human paradox. Humans would like to choose their own destiny but find it difficult to figure out what that destiny might be and what to do if and when some humans or all humans ever get to the destiny. Along the way, becoming smarter is not a bad idea, but there are no guarantees that smarter would give

mankind any better control over its destiny , especially if half of the human race enjoyed the status quo and would fight to the death to keep things as dumb and boring as they are, while the other half, the smart half, could not agree on what exactly” smart” means. To cope with the push and pull of human expectations and disappointments, it was hoped that some new invention would give man more control over himself and others and that new invention , about 3000 years ago, was writing.

The Venus of Willendorf and the paintings in the caves of Lascaux had much to say about human self-awareness and ingenuity, and both ancient expressions point to a smoldering possibility of powers beyond man, which can be approached. But, with the invention of the technology called writing, around 2500 BC, trade and commerce could be organized and recorded, the myths and beliefs could be shared, reworked, refined and corrected, and people could be taught and governed, motivated and inspired, even entertained. Furthermore, the gods could be counted, compared, sized up, and prayed to.

The first written language, cuneiform, took on all these burdens. We find preserved to this day, the emerging wisdom and self-image of mankind in two of the oldest written masterpieces, the Epic of Gilgamesh which tells of man’s awareness of his own failure to make himself immortal and in the Code of Hammurabi in which the king tries to set forth publicly the essential rules of justice:” an eye for an eye and a tooth for a tooth“ . The culture of Sumer, where this all happened, was likely the first literate culture in history, because the Sumerians had something to say and they knew how to say it - in writing. The venerable Hebrew leader, Abraham, came from the same sophisticated literate culture of Sumer, and it took him a long time to free himself and his people from the old illusions about right and wrong, about gods and human beings, about justice and loyalty and about hope. Once he found a single God worth dealing with Abraham’s journey of discovery led to the question of whether the culture of Sumer was worthy of either man or God. Oddly, the written account of Abraham’s own experience did not appear for several hundred years, till the time of Moses. However, the question remains: did anything really get better for mankind when humans could tell their stories in writing save them and repeat and embellish them?

That same question was raised by the Greek philosopher, Plato, about 400 BC who tells a story in the Phaedrus about the invention of writing by an old Egyptian god who offered this remarkable gift to a local king. Far from being grateful, the king turned the god down and rejected the gift of writing because it would, first, make conversation and dialogue among humans unnecessary, and, secondly, it would also take the place of remembering events because of their importance to humans, not simply because they were written down somewhere and were easily retrievable. People who depend on writing, the king argued, will “hear many things, but they will learn nothing.” He might have added the admonition that living conversation with another human being is the best way to sense the other’s reactions, interests and misgivings. Also, a live conversation allows the various parties to it to discover where they might be in error and where real self-understanding can take place. The king’s uneasiness about writing might be applied to all technical innovations, which tend to solve certain targeted problems, but end up causing other problems, which eventually require yet more technology to solve. In the simplest terms, the stick led to the pencil, to the eraser, to the board, to the paper, and eventually to the typewriter and to the word processor. The irony is to be noted, that Plato, while extolling the vitality of Socrates’ dialogues, depended on written accounts to get his own message out about the deficiencies of the new technology of writing. And the same irony is not lost on me, either, because I am dependent upon some powerful technology to write this essay, which will be somewhat critical of advancing technology. The inconsistency is acknowledged, and may well be inescapable.

This brief excursion into ancient history draws a picture of mankind’s attempts, in the spirit of Prometheus, to take charge of its own being and of how man ingeniously kept trying to find a way out of his own confinement by creating devices and techniques of all sorts that would work magic. Each new tool did advance humanity farther toward some kind of cultural identity, and gave some new reasons to hope for a better or easier life, but always at an unanticipated price. In short, human culture could not take shape and advance without the advance of technology, yet the technology could not survive on its own without the strength of the culture to use it wisely. From ancient times to the present nothing has been invented which could not be misused or improved upon. The decisions cannot be made by the invention itself: that’s the job of the inventors and users to figure out what comes next.

The Luddites Have Not Disappeared

In considering the impact of technology, from the invention of the chisel to the internet, one cannot ignore the mill workers of 19th century England, called Luddites, who took up arms (sledge hammers, actually) to destroy the new milling machines which were replacing them. The machines were more energetic, efficient and less costly than the workers were. When a whole class of people depend upon work to survive, they see the technology as the ultimate threat when the technology takes over the workplace. The Luddites are still remembered because they voiced a fear of technology, not unlike the fear of writing in Plato's time, a fear which has not vanished. While all kinds of technical advances save time, labor and money, diminish hard work, and even save lives, they also create new opportunities for economic expansion. Robert Heilbroner notes that from the time of the Luddite revolt, in 1810, 75,000 persons worked in manufacturing and in 1910 over 8 million did that kind of work, so, obviously technology did more good than harm, at least for the time being. But, as the spread of technological influence expands, new kinds of problems appear which the technical advances by themselves, are incapable of correcting

A few years ago the workers in a Ford factory, which was being automated took up the Luddite chant, "Robots don't buy cars." In other words, technology has economic consequences sooner or later, good and bad, not just for workers, but for everyone, including investors, industrialists and governments. Yet, if technology had only one real value, that is, an economic or financial value, then individual human privation caused by technological progress would be irrelevant, unless the market determined otherwise. The market would be the fundamental determinant of human destiny, which comes as no surprise.

Of course, it does no good to demand that those who invent the new instruments, also anticipate the problems they cause for others as well as for themselves, or even to know what those problems might be or become. Human ingenuity has a way of blinding the ingenious inventors to all but what they are concentrating on. As the consequences of progress evolve at their own pace, the job of salvaging the neglected fundamental human values falls to

whoever is wise enough or foolish enough to take the challenge. Where there is money to be made in patching up the system, there will be plenty of takers, but problems that do not stimulate profiteers to get involved, tend to be overlooked until they become disastrous. Ludwig Landgrebe was no Luddite, though he could see a century after the Luddites how their problems had expanded as the scope of technology transformed more and more of human life., far beyond the value of employment alone. It may well be that the Luddites' fear has grown into panic as the scope of technology spreads.

The Problems Expand

Among the contemporary writers who have concentrated on the impact of technical progress on work and human well-being Jeremy Rifkin deserves attention, especially since he addresses the need to craft a new “post-market era” in a “near workerless world”. He sees the “Third Industrial Revolution” as a drive to an automated society that will be transformed into a “high-tech global village.” He is sensitive to the unique impact of computer-based technologies in replacing the work of the human mind itself: “ substituting thinking machines for human beings across the entire gamut of economic activity” Rifkin does not back away from the thorny difficulties of involving partisan politics in the evolution of possible technical solutions, acknowledging the growing antagonism between more government and less government interests. One senses the panic of those who fear that a new socialism created by the “high-tech global village” is emerging, in which democracy itself will be compromised. On the other hand, some see the new global village as the fulfillment of the democratic aspirations of all peoples. The Arab Spring of 2010 hints at that possibility, although many terrorists are as technically savvy as are their more sophisticated enemies who dream of a radically different “global village.”

The recent MSN News three-part series, with the analysis of Bernard Condon and Paul Weisman, adds much current data about the impact of a pervasive technology on middle-class jobs in particular. In the wake of the 2008 recession, technological advances have removed jobs from every corner to the economy. Individuals have not just lost jobs, the jobs have been eliminated and replaced by technical devices which can think as well as do. In the

past new jobs and opportunities evolved with technical progress, but now it appears that the phenomenon is reversed. They contend that this trend is also as devastating in Europe and other part of the world, which further compounds the difficulties of selling products and services to individuals who, thanks to technical displacement, have no resources to pay for.

Some Intimately Personal Implications

While Rifkin focuses more on the broad social and economic picture of the coming revolution, it is important to also examine the intimately personal implications of the computer-based culture as well. This emphasis can take us into many directions, but one aspect of personal life that has been profoundly affected by technology but is rarely considered in discussions of the subject is the technology of sex, conception, abortion and birth. The primitive stone carving of the Maiden of Willendorf, who might have been the first sex- object of technical progress, represented a fundamental concern for the future of the human enterprise. Fertility was seen as essential to that future. Now, with the advance of the technology of sex, that future is seen very differently. Computer and informational technology are not only central to the development of such exotic agents as RU486 and other “morning after” interventions but such technology is powerful in disseminating information and advice about how, when and where to find and use such interventions. Starting with the refinement of artificial contraceptives, the necessary link between sexual love, marriage and reproduction has been weakened or severed by the abundance of birth control medications and devices. With these options comes the need for clear thinking and mature deliberations, but the appeal of those opportunities to separate sexual activity from any other responsibilities can be made especially attractive to young people. They are less likely to have the maturity and discipline to think beyond the immediate situations they confront and the young are easily reached by many automated messages, which may or may not promote mature deliberations. In fact, there are schools in the US, which provide contraceptives to students as an means od preventing venereal diseases.

In the assessment of in vitro fertilization (IVF), the Catholic Church, representing a large portion of what remains of Christian culture, in its official Catechism (number 1377) claims

that in the IVF process, a parent “entrusts the life and identity of the embryo into the power of doctors and biologists and establishes the domination of technology over the origin and destiny of the human person.” The Vatican document Donum Vitae advances the argument that the child has “a right to be the fruit of the specific act of the conjugal love of his parents.” Thus, from this understanding of human love and dignity, the disruptive intrusion of technology into the process of procreation renders those related technologies “deadly and they threaten the nature of our society at a fundamental level.” One could hardly imagine a more direct confrontation between “autonomous technology” and a vision of human-person-culture where every aspect of shared values is derived from the engagement of persons, never to be displaced by technologies.

Into the complex of choices comes the determination in many states to require that a woman seeking an abortion must be presented with ultrasonic evidence of the life within her womb. The pro-choice advocates oppose such invasive measures because they can be used to discourage the choice of abortion, while the pro-life advocates insist that the state has an obligation to protect intrauterine life and to demand that the woman be well informed so that she can make a truly thoughtful choice. The same technology can be involved in radically different ways, as in opening the doors of choice or as in closing them.

The Rate of Change Accelerates

It is the ongoing technical advances that put increasing pressure on individuals and advocacy groups to keep searching for answers to new and unanticipated questions. Thus the rate of change seems much more rapid and expansive than the rate of wise responses. For example, the newest “morning after” birth control pill is readily available in England where a supply can be kept at home. According to some pro-choice advocates, this may make unprotected sex too easy and lead to more carelessness, which is not the intended or anticipated consequence of the drug’s use. In Germany, where RU486 is readily available and is intended to induce an abortion, the government requires counseling before its use because it is feared that, without time to think through the decision with the help of a qualified counselor, abortion would become too easy and attractive an option, especially for those least capable of

handling such responsibilities. Again, the technology of effective communication about all of the implications of such new alternatives does not always keep pace with the advances in medical science and technology. This imbalance between what is readily available and what is genuinely understood can cause serious divisions and misgivings in a society where educators, political and religious leaders, family members cannot keep up with the rate of change.

In China, where the law limits to one the number of offspring a couple, other than farmers, may have, amniocentesis allows a couple to know the sex of a fetus and therefore to abort it if it is female for no other reason than that sons are culturally preferred. Also, it is anticipated that in China in a few decades there will be a disproportionate number of young males, as a result of the technology, which allows this choice of gender. This eventuality may then radically transform Chinese family values and culture. The government will then be forced to further regulate the intimate sexual lives of citizens. Yet the choice, which is a very personal one based on individual needs, fears and desires, is already having its impact on the future of the entire nation. The lesson here is that technology can offer a range of options without spelling out which options are beneficial or not and which are foreseeable at any one time. Whatever any particular culture may value when it embraces some technical advance, it may be forced to compromise those values when the unintended consequences show up. The reproduction crisis facing China also illustrates the special way that technology creates options and forces decisions, which are not especially welcome to any of the participants in a culture.

The Last Laugh

It may seem irresponsible to introduce a note of levity in the midst of such somber reflections, but contemporary technology is clever enough, in the hands of sophisticated artists, to poke fun at itself and at its inventors. This is the contention of Margaret Mathias who brings together the richness of Humor Scholarship and her own experience with artificial intelligence and other technologies. She examines how humor exposes technology's pretense through wit and ridicule, through irony, satire and even slap-stick. This requires

artists clever enough to know how to use the technologies of computers, robotics, lasers and digital and video devices to mimic human antics from the silly to the salacious. There is an ancient tradition that humor is the defining property of mankind and no insignificant ingredient in all cultures. A culture which can laugh at itself and use its own clever technological advances to demonstrate its inherent limitations is destined to last a bit longer than those which take themselves too seriously. Thus Prometheus, the trickster, pulled hope out of Pandora's box committing mankind to the endless invention of new tricks in order to escape the consequences of the earlier tricks that went bad. "Artificial intelligence" is not a trick of language, it is a dead serious attempt to put a label on one of the most subtle ironies in human history wherein certain devices can "think" with more information, at greater speed and accuracy, with keener logical precision than their befuddled creators. I agree with Mathias that our ability to make fun of ourselves by using our cleverest devices, makes all the difference and can give us hope. When the machines laugh at us for making "themselves" laugh, Prometheus will have been undone.