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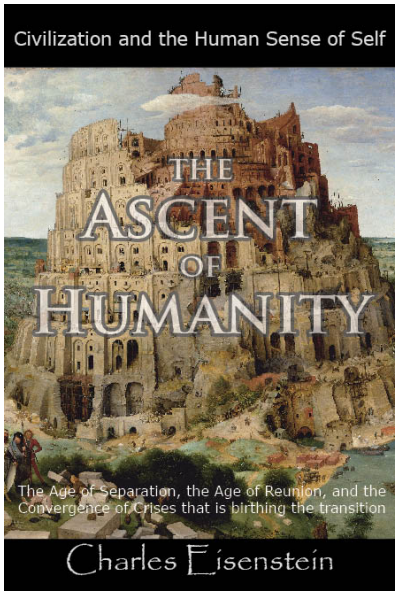

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The Ascent of Humanity:
Civilization and the Human Sense of Self

Subchapters 1–4 of Chapter 1:
The Triumph of Technology

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1 Gee Whiz — The Future!

For at least 200 years now, futurists have been predicting the imminent rise of a technological utopia, drawing on the premise that technology will free humankind from labor, suffering, disease, and possibly even death. Underlying this view is a defining story of our civilization: that science has brought us from a state of ignorance to an increasing understanding of the physical universe, and that technology has brought us from a state of dependency on nature's whims to an increasing mastery of the material world. Someday in the future, goes the story, our understanding and control will be complete.

At the dawn of the Industrial Revolution, it seemed obvious that the Age of Coal would usher in a new era of leisure. In one industry after another, a machine was able to "do the work of a thousand men." Soon the day would come when all work was mechanized: if a machine could do the work of a thousand men, then it stood to reason that each man would have only to work one-thousandth as hard.

As the Industrial Revolution progressed it soon became apparent that most people were doing more work, not less. True, the spinning jenny and power loom freed millions of women from the tedium of spinning their own thread and weaving their own cloth, but replaced that tedium with the horrors of the textile mill. Similarly, the steel foundry replaced the blacksmith's shop, the railroad car replaced the horse and cart, the steam shovel replaced the pick and spade. Yet in terms of working hours, working

conditions, danger and monotony, the Industrial Revolution had not lived up to the promise encoded in the term "labor-saving device." The Age of Leisure, where coal-powered machines would do the work while people looked on and reaped the benefits, was going to arrive later than expected.

The futurists did not give up hope though — maybe they had only been premature. They hadn't realized that coal wasn't enough — it was the Age of Electricity that would finally usher in technotopia. Modern man would live in a paradise of electrified comfort. The spate of inventions that followed the harnessing of electricity made it obvious that we had the power to eliminate most forms of work (still largely associated with physical labor) and bring unprecedented leisure to the masses.

Almost no one doubted the power, the inevitability, and the desirability of technological transcendence of our natural limitations. Hence the slogan of the 1933 World's Fair: Science Invents; Industry Applies; Man Conforms. The ascent of technology carries an aura of inevitability, destiny, and triumph. As John von Neumann put it, "Technological possibilities are irresistible to man. If man *can* go to the moon, he *will*. If he can control the climate, he will".[1] What fool would doubt it or stand in the way of progress?

In the decades after World War II, all signs pointed toward the impending triumph of technology. The 1940s and 1950s witnessed revolutionary innovations in medicine, including antibiotics and vaccines that (apparently) brought an end to the mass killers that had haunted civilization for centuries. Flush with victory, medical researchers confidently predicted the imminent end of all disease. Surely cancer, heart disease, and arthritis would succumb to modern medicine just as polio, smallpox, cholera, and plague already had. In agriculture, chemical fertilizers brought record harvests and the seeming promise of an unlimited cornucopia in the future, which would be protected from insect depredation by the new classes of pesticides such as DDT, lauded as nothing short of miraculous. Soon, it seemed, agriculture would no longer depend on nature at all,[2] as modern chemistry improved on the soil and modern breeding improved on the organism. Also around this time, atomic power offered the potential of virtually unlimited energy, electricity "too cheap to meter." Just as oil and coal had supplanted animal power, so would atomic energy increase our energy supply by several more orders of magnitude. And as the 60s drew to a close, space — the final frontier — also succumbed to human conquest, first with the orbiting of the earth and culminating with the moon landing of 1969.

Atomic Energy Commissioner Lewis Strauss summed up the vision nicely in 1954:

> It is not too much to expect that our children will enjoy in their homes electrical energy too cheap to meter, will know of great periodic regional famines in the world only as matters of history, will travel effortlessly over the seas and under them and through the air with a minimum of danger and at great speeds, and will experience a lifespan far

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1 Quoted by Kirkpatrick Sale, *Rebels Against the Future*, p. 59.

2 For example, the U.S. Department of Agriculture and others boasted a belief that soon DDT and other miracle chemicals would enable us to eliminate all insects from the earth – a worthy goal, it was assumed. Then would we be able to conduct agriculture without the messy uncontrolled variables that insects and other life forms represent.

> longer than ours as disease yields and man comes to understand what causes him to age.[3]

Meanwhile, the horrors of the industrial revolution seemed to be in retreat — its hellish slums, child labor, disease epidemics, 16-hour workdays, and starvation wages. The blossoming new sciences of economics, psychology, and sociology promised to bring the same wonders to the social universe that the hard sciences had brought to the physical universe. The goal of a rational society, engineered for maximum happiness just as a machine is engineered for maximum efficiency, was just around the corner.

So we cannot blame ourselves for believing that technology would indeed usher in the Golden Age of humanity, would make us finally independent of nature, independent of suffering, independent, perhaps, even of death. All that was needed was to extend our victories a little farther, to make our understanding and control of nature just a little more precise. And perhaps, the faithful opine, nanotechnology and genetic engineering will finally allow us to achieve that precision, to control nature on the molecular level in the same way we already (ostensibly) control it on the macro level. As one technology evangelist[4] puts it, "We would have an army of molecular robots and nano-devices that would allow us to completely dominate Nature. We now dominate it at a macroscopic level; we would then dominate it at a microscopic level too."

The paradigm of ever-ascending understanding and control represents a fundamental myth of our culture, which I call the ascent of humanity. Its culmination would be the totalization of that understanding and control, the complete mastery of nature. The myth goes something like this: whereas in the beginning we were fully at the mercy of natural forces, someday we will transcend nature completely. We will control the weather; conquer old age, disease, and death; improve upon the cell and the gene; augment or replace the body with mechanical parts; download our consciousness onto computers; even leave nature behind entirely by colonizing space. Consider, for example, the following futurist ravings:

> The systematic application of nanotechnology, self-reproducing micro-miniaturised robots armed with supercomputer processing power, and ultra-sophisticated genetic engineering, perhaps using retro-viral vectors, will cure the root of all evil in its naturalistic guise throughout the living world. And once the pain has gone, with the right genes and designer drugs there's no reason why life shouldn't just get better and better. . ."[5]

> In the near future, a team of scientists will succeed in constructing the first nano-sized robot capable of self-replication. Within a few short years, and five billion trillion nanorobots later, virtually all present industrial processes will be obsolete as well as our contemporary concept of labor. Consumer goods will become plentiful, inexpensive, smart, and durable. Medicine will take a quantum leap forward. Space travel and colonization will become safe and affordable.[6]

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3 Lewis L. Strauss, Speech to the National Association of Science Writers, New York City, September 16th, 1954.

4 João Pedro de Magalhães. http://www.senescence.info ↗.

5 David Pearce. *The Hedonistic Imperative*. http://paradise-engineering.com/heav22.htm ↗.

6 William Mohawk. Nano-Economics. Website no longer available.

The above quotes are from the far margins of futuristic thinking, but the underlying attitudes are alive and well, to wit: (1) that the answer to our problems lies in new technology; (2) that progress consists of increasing our control over nature; and (3) that someday our control over nature will be complete, or at least far greater than it is today, enabling the conquest of disease, reduction of work, lengthening of life-span, space travel, and so forth. As recently as the 1970s and 80s, futurists like Alvin Toffler were writing that the greatest challenge facing society in the year 2000 would be how to use all of our leisure time. Today, analyses of the future of retirement routinely assume that people will be living longer and, thanks to medical technology, will enjoy greater health into their later years. Every day we hear about "advances" and "progress," and although these words no longer bear the magical cachet they once did, we still wonder with anticipation what the next revolution in medical, information, or entertainment technology will be. Especially pronounced in magazines like *Wired!*, *Discover*, and *Scientific American*, the "Gee Whiz!" attitude about the future is everywhere, an ideology of progress written into our fundamental beliefs. What will the next wonder be? Where will Moore's Law take us next?[7] Naïve on the surface, the extreme opinions quoted above are merely distillations of a pervasive cultural myth: that we are on the way toward fulfilling our destiny of rising above nature.

That the words "The Ascent of Humanity" reverberate with a religious connotation is not surprising. Where else do we find the idea that our present age of suffering is only a temporary stage on the way to some perfect state of future existence? The myth of technological utopia is uncannily congruent to the religious doctrine of Heaven, with technology as our savior. Thanks to the god Technology, we will leave behind all vestiges of mortality and enter a realm without toil or travail and beyond death and pain. Omnipotent, technology will repair the mess we have made of this world; it will cure all our social, medical, and environmental ills, just as we escape the consequences of our sins of this life when we ascend to Heaven.

This, in a nutshell, is the ascent of humanity that Jacob Bronowski was referring to in his classic The Ascent of Man, after which the present volume is ironically named. It is an ascent from the depths of superstition and ignorance into the light of scientific reason; an ascent from fear and powerlessness in the face of natural forces to the mastery of those forces. A myth is a story that provides a template for understanding ourselves and our world; as well it is a program that guides our choices and priorities. Accordingly, I will distinguish the myth of ascent into two aspects: the Scientific Program of complete understanding and the Technological Program of complete control.

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[7] Moore's Law says that the complexity of integrated circuit chips doubles approximately every 18 months. The naïve interpretation is that computers are getting exponentially smarter.

The Technological Program

Starting with stone tools and fire, technology has given us increasing control over nature, insulated us from her whims, and provided us with safety and comfort.

***Past*:**

We had very little control over the physical environment. We were at the mercy of nature.

***Present*:**

Although there are still many problems to be solved, we have made great strides in our ability to engineer and control nature. We have conquered many illnesses, reduced the hardship of survival, moved mountains and drained lakes, augmented the processing power of our own brains with computers.

***Future*:**

Someday our control over nature will be complete. We will prolong human life indefinitely, eliminate pain and suffering, eliminate labor, travel to the stars and leave earth behind entirely.

The Scientific Program

By making methodical observations of the universe and creating and testing theories, we replace myth and superstition with a growing body of objective knowledge.

***Past*:**

We had very little understanding of the laws of the universe, so we resorted to myth and superstition in a vain attempt to explain the world.

***Present*:**

While there are still many things about the universe that we do not understand, we have discovered at least the basic framework of how the universe works: the laws of gravity, quantum mechanics, evolution, and so forth. We can explain most of the phenomena we observe, and we have plausible theories about the rest. Myth and superstition have no place.

***Future*:**

Someday our understanding of nature will be complete. We will formulate a "Theory of Everything" that combines relativity and quantum mechanics into a single equation, and apply that theory to explain any and all observed phenomena. There will be no more mysteries – even the workings of the human brain will be fully understood according to scientific principles.

Together, the Scientific Program and the Technological Program form a defining myth of our civilization. The two are intimately related: technology, our ability to control the world, arises from science, the means by which we understand and explain the world. Technology in turn provides the means for science to probe even more deeply into the remaining mysteries of the universe. Technology also proves the validity of science — if our scientific understanding of the world were no better than myth and superstition, then the technology based on that science wouldn't work.

Philosophers of science will protest that it is already well-established, even in conventional circles, that perfect knowledge and perfect control of the universe is probably impossible (due to such things as mathematical incompleteness, quantum indetermi-

nacy, and sensitive dependence on initial conditions). Be that as it may, this information has yet to filter down to the level of popular consciousness, even among scientists. What I am talking about is the faith encapsulated in the saying, "Science will surely explain it someday." It is the faith that the answer is there, the answer is accessible to science, and that science itself is well-grounded in its primary principles and methods. The technological corollary to this faith in science is our faith in the technological fix. Whatever the problem, the solution lies in technology — finding a way to solve the problem. Science will find an answer. Technology will find a way.

Underlying the Technological Program is a kind of arrogance, that that we can control, manage, and improve on nature. Many of the dreams of Gee Whiz technology are based on this. Control the weather! Conquer death! Download your consciousness onto a computer! Onward to space! All of these goals involve controlling or transcending nature, being independent of the earth, independent of the body. Nanotechnology will allow us to design new molecules and build them atom by atom. Perhaps someday we will even engineer the laws of physics itself. From an initial status of subordination to nature, the Technological Program aims to give us mastery over it, an ambition with deep cultural foundations. Descartes' aspiration that science would make us the "lords and possessors of nature" merely restated an age-old ambition: "And God said to them, Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Genesis 1:28).

Yet a contrary thread runs concurrently through the world's religious traditions, a recognition of the hubris of our attempt to improve on nature. Greek mythology has given us the figure of Daedelus, who arrogated to himself the power of flight in violation of ordinary mortal limitations. The power to transcend nature's limitations is for the gods alone, and for his temerity Daedelus was punished when his son, Icarus, soared too high in his desire to attain to the heavens. In the Bible we find a similar warning in the Tower of Babel, a metaphor for the futility of reaching the infinite through finite means. Have we not, through our technology, attempted to rise above nature — sickness, uncertainty, death, and physical limitation — to attain to an immortal estate?

2 Utopia Postponed

The 1960s were in many ways the summit of our civilization. We had beaten polio, smallpox and plague. Surely cancer and the rest would succumb in due course. We had beaten the Nazis. Surely the Commies were next to go. Social problems like poverty, racism, illiteracy, crime, and mental illness would be engineered out of existence. Everything pointed to unlimited growth and continued triumph: atomic power, robots, space, artificial intelligence, maybe even immortality. But in the words of Patrick Farley, the future has been running a little behind schedule.[8]

Hints that technology was not the vehicle of Utopia began to emerge early in the Industrial Revolution, but its successes were so spectacular that it was easy to believe

[8] Farley, Patrick. *The Guy I Almost Was*. http://web.archive.org/web/20061218011402rn_1/e-sheep.com/almostguy/ ↗.

that social and environmental problems were merely temporary impediments, engineering challenges we would overcome through the same methods, mindsets, and techniques that had solved previous problems: more technology, more control. Today the successes are less spectacular, the crises harder to deny, the promise of Utopia "just around the corner" more hollow, but we still act as though more control were the answer.

For example, the medical establishment is having more and more trouble hiding the fact that, with the sole exception of emergency medicine, forty years of "advances" have had little impact on human health and mortality. Consider the overall effect of the successes. Organ transplants were a real breakthrough, but their effect is limited to a few thousand patients annually. Most of the new pharmaceuticals merely control symptoms, often with severe side-effects. Hormone replacement therapy is turning out to be a disaster. The same for cholesterol-lowering medication, anti-depressants, and many of the painkillers. When a new medicine is unveiled, a "twenty percent improvement in outcomes among a significant group of patients" is considered a great success. Despite decades of huge investment, it appears that the age of dramatic cures is over. There has been no "cure" for any of the poster child diseases such as muscular dystrophy and breast cancer. Certainly no major disease has been wiped out since we conquered the great killers of the nineteenth century. Coronary artery disease has retreated little, if at all, in thirty years. Cancer is doing just fine, thank you. Arthritis is just as devastating as ever, strokes nearly as common, Alzheimer's disease on the rise. Meanwhile a host of formerly uncommon conditions, for which conventional medicine can offer palliative remedies at best, have grown into epidemics: diabetes, autism, allergies, multiple sclerosis, lupus, obesity, chronic fatigue, fibromyalgia, multiple chemical sensitivities, inflammatory bowel syndrome, chronic fungal infections, and many others. Not only have formerly rare diseases become epidemic, but entirely new diseases such as AIDS have appeared seemingly out of nowhere. Finally, to add insult to injury, some of the "conquered" diseases of the past such as tuberculosis seem to be making a comeback, usually due to antibiotic resistance. This state of affairs constitutes a great unspoken crisis in medicine. Despite unprecedented billions of dollars in pharmaceutical research, medicine seems to be losing ground in the "battle against disease." Typically, the response is more technology, more precise control at the genetic and molecular level. A continued search for the "cure."

Life expectancy has similarly failed to live up to predictions. For half a century now, futurists have been predicting dramatic increases in life expectancy: there is no reason why 120 years shouldn't be common; perhaps with gene therapy this could be extended indefinitely. A glance at the statistics, however, shows that the most dramatic gains in life expectancy all occurred in the first half of the 20th century, not since 1970. From 1900 to 1950, life expectancy at birth rose by an impressive 21 years; since then it has risen only 9 years.[9] Moreover, much of this improvement must be due to lower infant mortality and emergency life-saving procedures, because if we look at life expectancy

[9] Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. http://www.cdc.gov/nchs/fastats/lifexpec.htm ↗.

at age 65, we find a paltry 4-year increase over the past half-century.[10]

Gains in life expectancy show the same familiar pattern of diminishing marginal returns that we see in the agricultural application of fertilizer. The first application of technology (fertilizer) brings dramatic results, but subsequent applications have less and less benefit until enormous amounts are eventually required to boost yields a tiny bit, or even to prevent yields from falling. As burgeoning healthcare expenditures demonstrate, we are presently pouring enormous technological effort into healthcare with only tiny gains compared to the dramatic improvements that accompanied the comparatively modest expenditures of the early 20th century. We can expect that unless the fundamental direction of medical technology changes, life expectancy will stagnate and probably even begin to fall within ten years.[11]

Nor has technology lived up to its promise to usher in an age of leisure. In the United States, leisure time did seem to be increasing throughout the 20th century until about 1973, when it began a gradual, sustained decline. Most researchers agree that leisure time has decreased in the thirty years since then: we are spending more time working, more time commuting, more time running errands, more time meeting the obligations of life.[12] The computer, trumpeted as the final key technology that would do for the drudgery of mental labor what machines had (supposedly) done for physical labor, has brought about the opposite: more time spent in offices, at desks, at keyboards. By now it is apparent that the computer has not eliminated the drudgery of office work, any more than the steam engine eliminated the ordeal of physical labor. Despite the "information revolution," few people would argue that office work has become more intellectually stimulating or meaningful in the last thirty years. The solution? Again it is more technology, more labor-saving devices, greater efficiency, better "time management."

Technology has similarly failed to bring about a world of plenty. While the food supply has indeed grown enough to feed a doubled world population, hunger and famine are no less prevalent, and for the same old political and environmental reasons: war, repression, and drought. Moreover, vast areas of land that were once agriculturally productive have turned to desert, so that we face the prospect of a food crisis, not a cornucopia. (At the present writing, world grain stocks are in decline,[13] and most of the great fisheries nearly depleted.) The last forty years of "development" in the third world have not brought the promised prosperity. To the contrary, the gap between

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10 Ibid.

11 That is my personal estimate, but already even some mainstream researchers are claiming that the new generation will be the first in 200 years to have a lower life expectancy than their parents. In a paper published in the March 17, 2005 issue of the *New England Journal of Medicine*, a team of scientists claims that the obesity epidemic could shorten life spans by up to five years in the next few decades. Other authorities disagree, citing "advances in modern medicine" that will offset these losses.

12 Juliet Schor. Overworked American: The Unexpected Decline of Leisure. Basic Books, 1993.

13 "Grain Stocks Continue to Shrink, Despite Record Production," USDA Foreign Agriculture Service Circular Series, May 2004.

rich and poor has widened globally and within third-world countries themselves. Travel in the Third World and you can easily see for yourself that the destitution, disease, and dislocation of our own Industrial Revolution are still common today. And the justification is the same too: It is just a temporary phase before you become a "developed" nation like us. We had to go through it, and so do you; it is the natural order of things. The prescription, then, is again more of the same, further "advances" in agriculture and more vigorous economic development. Now, people around the world are starting to disbelieve this dogma, simply because the decline in third-world living standards has continued unabated for too long. That wasn't supposed to happen. In many Latin American countries, the middle class has almost disappeared altogether.

In space, the triumphs of the 1960s and 1970s never led to the space colonies, Mars landings, and interstellar space travel that were confidently predicted by the year 2000. There have essentially been no significant advances in propulsion technology since the rocket, developed some seventy years ago. When I was growing up in the early 1970s, space fever gripped the minds of all my contemporaries: we had space board games, space lunch boxes, even, I recall, rocket-shaped shampoo bottles. We landed on the moon; then we did it again. And again. We have not returned to the moon since the 1970s, however, and there is little enthusiasm for such a mission today. Been there, done that. . . where has it led? At the time of this writing, President Bush has just proposed a new drive to establish a permanent moon base and a manned mission to Mars, yet there is not even a shadow of the excitement that enthralled the nation in the days of my early childhood.

The age of leisure and easy plenty, technotopia, is forever just around the corner. First it was the Age of Coal that was supposed to free us from labor: in the dawning Golden Age of the 19th century, coal-fired steam-driven machines would do all the work. Instead we got the sweatshop, the coal mine, the foundry, the Satanic mills and Stygian forges (no idle metaphor, these), the eighty-hour work week, child labor, industrial accidents, starvation wages, fabulous wealth alongside wretched slums, childhoods spent in coal mines, horrific pollution, shattered communities and ruined lives. But not to worry! The Golden Age was just around the corner, thanks to electricity! Chemistry! The automobile! Nuclear power! Rockets! Computers! Genetic engineering! Nanotechnology! Unfortunately, none of these ever quite lived up to their promise.

And now we are in the 21st century, which was supposed to have been the Age of Leisure, the Information Age, the Knowledge Economy. In the latter phrase some key prejudices of the ascent myth are laid bare. It implies a progression from the industrial age, mired in materiality, to a separate, exclusively human realm of pure knowledge. The base concerns of material production were to be left to less advanced countries; our society was to have risen above that to deal in the products of the mind. Eventually, with the perfection of robotics, all societies were to follow us there.

The aspiration to rise above materiality defines modern religion as much as it does modern economics and modern technology. This is no accident. All arise from a common source that I will discuss throughout this volume. All are variations on the theme of ascent, the ascent of humanity. "Materiality," after all, is just a pejorative word for nature, and we identify the ascent of humanity with a progressive transcendence of

nature. Once nature's slave, now its master. So of course it is higher, better, more ascended to be in the realm of the mind than the realm of base material production.

This is why occupations such as "executive" and "consultant" carry a cachet absent from "industrial engineer" and "plumber." For the last twenty years or more, young people have aspired to such roles without even caring what their actual subject matter is. They major in business, marketing, and finance, hoping to be an "executive" somewhere, anywhere. Part of the reason is the wealth and status that accord to such occupations, but a deeper principle is at work, too: the separation of spirit and matter, mind and body, human and nature that is as old as civilization. From the first social division of labor, prestige went to those whose hands were not sullied by the dirt — the soil of farming at first, but eventually the entire material world. Thus it was that ancient kings' feet were not allowed to touch the earth. Today's knowledge worker was supposed to be the consummation and democratization of that trend. Every man a king.

The bankruptcy of the ambition encoded in the words "knowledge economy" is now becoming plain. Office work is no less tedious than that of the assembly line or vegetable monofarm — and for the same systemic reasons I will describe in Chapter Two. Much of today's knowledge economy consists of data input. Furthermore, the recent migration of "knowledge-intensive" jobs such as engineering and computer programming to new industrial powerhouses such as India and China demonstrates that the realms of mind and matter are not so separate as we might wish to think.

The promise of Utopia just around the corner to justify today's sacrifices is a common thread connecting every application of the Technological Program. We saw it in the Age of Coal, we see it in the Computer Revolution today: We must undertake the vast project of inputting all the data; then computers will run everything much more efficiently. We see it in the Third World in the IMF's austerity programs, which call for sacrifice today to bring prosperity tomorrow. IMF policies are often criticized as instruments of globalization that benefit the already-wealthy, but their systemic necessity springs from a much deeper source than that. Sacrifice is a built-in feature of any capitalist system based on interest-bearing money: sacrifice now to scrape together the money-that-breeds-money. Even more fundamentally, it is a defining mindset of agriculture, in which we must sow today in order to reap tomorrow. The same mentality affects religion, which calls upon us to sacrifice worldly pleasures for the sake of a hypothetical future Heaven. The problem with all this is that, whether in the Third World or in the endless task of data input, the sacrifice seems to be perpetual. Heaven never comes. Speaking from the bowels of the Industrial Revolution, William Wordsworth said it best:

> With you I grieve, when on the darker side
> Of this great change I look; and there behold
> Such outrage done to nature as compels
> The indignant power to justify herself. . . .
> Then, in full many a region, once like this
> The assured domain of calm simplicity
> And pensive quiet, an unnatural light
> Prepared for never-resting Labour's eyes

> Breaks from a many-windowed fabric huge;
> And at the appointed hour a bell is heard — . . .
> A local summons to unceasing toil! . . .
> Men, maidens, youths, Mother and little children, boys and girls,
> Enter, and each the wonted task resumes
> Within this temple, where is offered up
> To Gain, the master idol of the realm,
> Perpetual sacrifice.[14]

Perpetual sacrifice. It is an ideology that invades nearly every aspect of our lives. What is being sacrificed? What is the common thread? Most fundamentally, it is a sacrifice of the present for the future. Cut back today so you will have enough for tomorrow. Work comes before play. No pain, no gain. Control yourself. Whether it is in diet, education, or personal development, we find the same sad prescription. Why is it that for so many people, the Heaven of physical fitness, or financial independence, or cessation of an addiction remains forever just as distant as technological Utopia? How long do your New Year's resolutions last? Well, try harder. It is like the man who decided to walk to the horizon, and failing to get there, concluded that he needed to run instead. This book will uncover the origins and evolution of the regime of perpetual sacrifice that we have endured in our attempt to build a tower to Heaven.

Because the exhilarating "Gee Whiz!" aspect of technology has failed to deliver the futuristic wonderama we all expected in the 1960s, the dark side of technology has become more difficult to ignore. Certainly there has been ample evidence for centuries that technology is not an unqualified good, but until the twentieth century the ideology of progress dominated all but the most independent thinkers. The horrific conditions of the industrial revolution could be explained as merely a temporary sacrifice on the way to Utopia. Only a few romantics had the vision to resist this ideology, people like William Blake, Wordsworth, Lord Byron, Henry David Thoreau, and Mary Shelley, who saw the ruination within mass industrial society not as a temporary phase or an engineering challenge, but as its fundamental character.

All this started to change in 1914, when the world finally got to see the result of industrialization applied to warfare: battlefield carnage on the mass scale of industry, a whole generation of young men decimated, extending thirty years later to encompass entire civilian populations in the conflagration of total war, and ending in the first application of the century's greatest scientific triumph: the atomic bomb. At the same time, the organizational principles of the industrial revolution, based on the same scientific tools of analysis and control, reason, logic, and efficiency, were applied to the purposeful mass extermination of innocent people under Hitler, Stalin, and their imitators.

Ironically, it was precisely these principles of logic, reason, and efficiency that were supposed to elevate humanity to a more noble state, just as the technologies of physical and chemical engineering — used in the world wars — were supposed to elevate hu-

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[14] From *The Excursion*, Book Eighth, starting on line 150. Kirkpatrick Sale quotes the same passage in *Rebels Against the Future*, which is how it came to my attention.

manity to a new level of material comfort, health, and security. The irony was not lost on artists, writers, and other cultural sensitives, who have been grappling with the resulting feelings of betrayal and despair ever since.

From Plato onward, Utopian philosophers thought that reason, planning, and method would bring the same progress to the social realm as material technology brought to the physical. Social planning would conquer the wilderness of human nature, just as technology subdued the wilderness of physical nature. The failure of both is seen merely as evidence that we need more of the same. The ambition of nanotechnology, to extend physical control to a new level of microscopic precision, parallels the social technologies of education and law as they strive toward ever-finer regulation of human behavior.

Underlying both material technology and sociopolitical methods of control we find the same conceptual foundation. Is it mere accident that from this foundation, the same decimation has visited both the human and natural realm? Obviously, there is a flaw in the common position that technology is neutral, up to us to use for good or for evil. The pogroms and the genocides, the ethnic cleansings and wars of extermination, the despoliation of the planet and the wrecking of indigenous cultures, all these are attributed to the misuse of technology, not technology itself. But perhaps this position is mistaken. Perhaps something basic to the very mindset of technology has generated the twin crises in the social and environmental realm.

In some quarters the faith in technology continues. Ozone layer destruction? We'll make new ozone. Soil erosion? We'll find a way to grow food without soil; maybe we'll just synthesize it. Total environmental collapse? No matter, we'll colonize the stars. Who needs nature anymore? The can-do spirit that has brought us this far will surely overcome any future obstacles. Human ingenuity is unlimited. If things seem to be getting worse, not better, if people seem to be getting sicker, busier, and more anxious, if life seems more stressful and the environment less healthy — rest assured! This is a temporary sacrifice, one step backward necessary to take a giant leap forward.

Today, though, the rhetoric of progress is wearing thin. It looks as though the future, always just around the corner, is never going to come. Since the mid-20th century, that feeling of betrayal and despair has spread beyond artists and intellectuals to engulf the entire population. Superficially, many people still affirm that the onward march of technology will someday render all our present problems obsolete, but on a deeper level they have lost confidence in both science and technology. The long-promised marvels — the next step in our transcendence of nature — have failed to materialize, while new and unforeseen problems multiply faster than we can solve them. Gone is the Sixties optimism that sparked the War on Poverty, the War on Cancer, the Conquest of Space. Now we hope merely to stave off the problems that threaten to overwhelm us: the convergence of crises in the environment, health, education, the economy, and politics.

3 The Addiction to Control

Whereas technology once promised a grand future of leisure and security, today we need intensifying doses of it merely to keep the world from falling apart. A pattern of

diminishing marginal returns seems to have infiltrated all areas of technology, whether material or social. Early in the twentieth century, modest expenditures in medical research brought enormous improvements in lifespan; today vast outlays barely succeed in maintaining present standards. In agriculture, small amounts of chemical fertilizers and pesticides once brought huge increases in crop yields; today, ever-greater chemical input can hardly prevent yields from falling, despite "improved" varieties. In daily life, inventions such as cellular phones, personal digital assistants, convenience foods, and the Internet barely enable us to keep pace with the ever-quickening pace of modern life.

Recently I had a conversation with a long-time Washington D.C. native who was recalling the building of the Beltway back in the 1960s. Everyone was excited because you'd be able to circumnavigate the whole city in just an hour. D.C. was starting to have traffic jams, and the Beltway would usher in a new era of ease and convenience. Well, everyone knows what happened. The new road facilitated new real estate development and encouraged people to use cars rather than public transport. Soon the beltway was jammed. The solution? Make it wider and add even more roads. Of course that caused even more development and congestion. The immediate engineering solution — more roads to accommodate an excessive car-to-road ratio — worsens the problem in the long run. That is a classic example of a technological fix. Technology usually has unintended consequences, often including, as in this case, a worsening of the problem the technology was supposed to solve. Generally speaking, unintended consequences are not the result of sloppy engineering, lazy planning, or lack of diligence; they cannot be eliminated through tighter control; rather, they are built in to the very attempt at control.

By now this pattern of escalating dosage for a diminishing effect may remind you of another meaning of the word "fix" — a drug fix. Our dependency on technology shares many features in common with drug addiction. Returning to the example of agriculture, once we've killed the natural predators, lost the topsoil, depleted the minerals and so on, we really cannot grow crops at all without repeated applications of more and more technology. Each fix brings some temporary improvement, but then crop yields start falling and we need another fix. At this point we're hooked: if we go back to zero fertilizer, crop yields fall way below the original pre-fertilizer level. Eventually, the soil is so damaged that no amount of fertilizer can coax life from it. The parallel with the course of addiction is uncanny: escalating dosage to get a less and less intense high, followed ultimately by complete desolation.

The history of life expectancy related above is another example. The "dosage" of technology must go up and up, at a greater and greater expense to the rest of life, in order to achieve diminishing returns. Eventually, addicts tell us, huge doses of the drug are needed to even feel just normal. In parallel, huge medical expenditures are needed even to keep people functioning at all. Half of American adults take some form of prescription medication;[15] the average senior citizen takes between two and seven per day.[16]

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[15] Bowman, L. 51% Of U.S. Adults Take 2 Pills or More a Day, Survey Reports (Scripps Howard

In the beginning of Terry Gilliam's dark science-fiction film *Brazil*, the main character's aunt has gotten some minor plastic surgery to fix a blemish on her face. We see her with a little bandage. The next time we see her there are two or three larger bandages, because there were complications from the initial surgery. The next time, bandages cover most of her face, because she had new surgery to fix the complications of the second surgery, which was to fix the complications of the first. By the end her whole head is swaddled in bandages. Each time she says something like, "It's almost perfect" or, "The doctors tell me it will just be a matter of one or two more procedures." A series of incremental improvements ends up in total ruin.

Why is the technological fix so attractive? Because from the short-term perspective, it really does work. The first digging stick really did make it easier to obtain roots. A cup of coffee really does make us feel energized. A good stiff drink really does make the pain go away. Air conditioning makes us feel cooler on a hot day. Cars get us there faster. Fertilizer boosts the yield. With each stage of construction, the Tower rises higher. See, it's working! We're getting closer to the sky.

Invisible at first is the fact that the fix is a trap. At the end of the day, the coffee exhausts our adrenal glands and makes us more tired, not less. The air conditioning habituates us to a narrow range of comfort, trapping us indoors. Cars inevitably bring more roads, more cars, and more time in transit, not less. Food production technology brings population increases, and eventually less security and more anxiety.

Ultimately, even the immediate efficacy of the fix diminishes. The problems it once ameliorated grow to overwhelming proportions. Today, new technology can barely keep pace with the acceleration of modern life, the proliferation of new threats, new diseases, and new uncertainties. Eventually, the alcoholic becomes so sick that each drink causes more pain than it removes.

The principle of diminishing marginal returns that characterizes the technological fix was explored by archaeologist Joseph Tainter in his classic work, *The Collapse of Complex Societies*.[17] Tainter says that a society's investments in complexity bring fewer and fewer benefits, until its maintenance alone consumes all resources. Bureaucracies, legal systems, technological systems, and complex divisions of labor solve a society's immediate problems and achieve dramatic initial returns, but come with hidden costs. These costs may be exported into the future, delayed in their manifestation through growth and conquest. Eventually, though, in a pattern that has repeated itself from ancient Sumer to Rome and now to the American Empire, the society collapses under the weight of the structure it has erected. First the burden grows heavy; then one crisis after another is barely averted. Wars over resources break out, the leadership degenerates into corruption, the environment deteriorates, and finally one or another crisis — something the civilization could have easily overcome in its youth — deals the final

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News Service). *San Diego Union-Tribune*, Weds., Jan. 17, 2001:A8.

16 "Seniors and Medication Safety," Minnesota Poison Control System, http://www.mnpoison.org.

17 John Tainter. *The Collapse of Complex Societies*. Cambridge University Press, 1988.

blow. The society "collapses" to a state of much diminished complexity.

I find in the Babel story an allegory for this process. The organizational overhead required to manage an increasingly complex project manifests as a growing confusion, an inability to communicate across the vast range of specializations and subsystems that need to be coordinated. In the Bible story, the builders find themselves speaking different languages, unable to communicate, unable to unite in a common task — a situation eerily prescient of the specialized jargon that separates each scientific and professional field and stalls meaningful progress. In the story, the Tower is eventually abandoned. In my mind's eye I picture its abandonment preceded by frantic attempts to shore it up, to repair the proliferation of cracks and cave-ins that foretell its ultimate collapse. After the initial rapid progress slows and eventually stalls, the ambition of reaching the sky becomes a mere dogma, an ideology that no one believes. Such is our attitude toward the technological utopia I describe in section one. No one believes it anymore. Indeed, it consumes all of our effort to even maintain the Tower at its present height. Even as we make an addition here and there, other parts crumble, and a spreading infirmity undermines its very foundations.

The parallel to the life of an addict is uncanny. Easy to maintain at the beginning, the addiction soon demands increasingly complex structures to support it. The addict sacrifices long-term for short-term benefits, establishes webs of deceit that must eventually fail, and devotes more and more resources to maintaining the addiction. Get my fix today, deal with the consequences tomorrow. The consequences build and build, the burden on life grows, and eventually the whole fragile structure collapses. Just as the immediate cause of the collapse varies from person to person, so we must look beyond the proximate causes for the collapse of civilizations as well. On one level, yes, it will be the energy crisis, or an economic depression, or a military defeat, or an environmental crisis, or a combination of these, or something totally different that will end our civilization. The immediate cause is impossible to predict, but the end result is inescapable.

While hints of the built-in failure of the Technological Program have been nagging civilization for thousands of years, it is only in the present era that they are becoming undeniable and inescapable. In the past, for instance, the effects of ecological destruction were localized: the rich and the lucky could always move somewhere else (which is, in itself, a kind of temporary fix as well). Today, as ecosystem collapse becomes global, there is no longer a "somewhere else." There is nowhere to go. Even when people retreat into a fortress mentality, our systemic social and environmental problems find a way in.

In any addiction, the fix appears to work beautifully at first: a servant of life, an easer of pain, coming at a manageable cost. At first the sacrifices seem worth it, cast into some corner to be dealt with later. But sooner or later the cost grows to such proportions as to engulf the whole of life, even as its power to numb the pain diminishes.

The technological fix puts off the problem to the future, just as a drinking binge puts off until tomorrow the problems of life. No longer. The future is now, and it will not be put off much longer. "The future" of the Technological Program is one where all the problems are solved once and for all; here and now, though, we are waking up to

another kind of future, and with a hangover to boot: vomit on the floor, the apartment trashed, the world a mess.

Just as any personal addiction inexorably unravels the fabric of the addict's family, friendships, work and indeed all relationships to the world, so also has our technological addiction slowly destroyed our natural and social environment. And as with other addictions, before technology's glittering promise began to fade, such destruction was easy to ignore. The appalling pollution of the 19th century was actually more destructive to human quality of life (though more localized) than pollution today, but was easily dismissed as a temporary problem, a cost of progress that would inevitably be solved through more technology. Today for many of us the effects of pollution are more distant, more subtle, and certainly less easily attributable to a single specific cause, but also more systemic and more a threat to the whole of the planet. From ozone layer destruction to global warming down to the PCBs in every living cell,[18] the destruction today is pervasive, inescapable.

The inescapability of the present crises is demolishing the fundamental illusion beneath the course of separation. As long as we believe ourselves to be discrete beings fundamentally separate from the environment, then in principle there is no limit to our ability to insulate ourselves from the degeneration of the social and natural environment. The world is an Other, and its suffering has nothing to do with me, provided I am skillful enough in insulating myself. Today, as the wreckage proliferates, its effects become increasingly difficult to manage. The habitual response is to try harder: to invent new technology to clean up the problems of the old. To insulate ourselves still more skillfully from the mess. But as this becomes impossible, as burgeoning crises overwhelm us, another possibility emerges: to abandon the program of insulation and control, and the conception of the separate self on which it rests.

The process of addiction recovery described by the Twelve Steps program offers an interesting parallel. The first three steps boil down to something like this: "We realized that we were powerless over our addiction — that our lives had become unmanageable. Therefore we made a decision to give our lives and our will over to a higher power." In the context of technology, the first sentence above amounts to an admission of the failure of the Technological Program. It is the realization that the more we try to manage and control nature, the more unmanageable and uncontrollable our problems become. The second sentence is a statement of surrender to and trust in that which is beyond ourselves. The religious content of the twelve-steps testimony translates in this context to a transcendence of the limiting and delusionary conception of self implicit in our physics and biology, economics and politics, philosophy and religion.

The way we relate to the world is written into our most basic mythos, our cosmology, our ontology — belief systems that *underlie* the superstructures of science and religion. It is our fundamental beliefs about who we are and about the nature of the universe that have generated human life as we know it, and the world as we experience it. If

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[18] "Conspiracy of Silence," Eric Francis, originally appearing in *Sierra magazine*, cover story, Sept./Oct. 1994. The claim that PCBs are present in every living cell appears in a 1998 introduction to that article (http://www.planetwaves.net/silence.html ↗).

these beliefs remain unchanged, then unchanged as well will be the direction they take us. Our despair, then, is justified. Technology as we know it, and with it the program of control, will never fulfill the promise of the ascent of humanity. But herein also lies a great hope, because from despair comes surrender, and from surrender comes an opening to new beliefs, a new conception of self and world. From this might come a new way of relating to the world; that is, a new mode of technology no longer dedicated to the objectification, control, and eventual transcendence of nature.

The collapse we are facing is of more than "our civilization" but of *civilization* itself — civilization as we know it. It is a collapse of a whole way of relating to the world, a whole way of being, a whole definition of self. For at the root of the technological addiction is our own off-separation from the universe, our self-conception as discrete and separate beings that goads us toward control. Historical civilizations' disintegration were a preview of the archetypal collapse that is overtaking us today, diffracted back onto history.

What drives our addiction to technology? Underneath all addictions there is an authentic need that the addiction promises to meet. The narcotic says, "I will kill the pain." But of course, the promise is a lie that leaves the true need unmet. The same goes for technology, driven by the imperative to control nature, which itself comes as well from an unmet need. It is a need that we all feel in different ways: as an anxiety endemic to modern life, as a near-universal feeling of meaninglessness, as a relentless ennui from which we can only ever be temporarily distracted, as a pervasive superficiality and phoniness. It is a feeling that something is missing. Some people call it a hole in the soul. What we are seeking in our technological addiction is nothing less than our lost wholeness, and its recovery is what lies on the other side of the imminent collapse of the regime of separation.

4 From Separation to Boredom

The ascent of humanity has come at a price, and I am not speaking here merely of the destruction of the ecological basis of human civilization. Our separation-fueled ascent exacts its toll not just on the losers, the victims of our wars, industry, and ecocide, but on the winners as well. It is the highest of all possible prices: it comes out of our very being. For all we have built on the outside, we have diminished our souls.

When we separate ourselves from nature as we have done with technology, when we replace interdependency with "security" and trust with control, we separate ourselves as well from part of ourselves. Nature, internal and external, is not a gratuitous though practically necessary other, but an inseparable part of ourselves. To attempt its separation creates a wound no less severe than to rip off an arm or a leg. Indeed, more severe. Under the delusion of the discrete and separate self, we see our relationships as extrinsic to who we are on the deepest level; we see relationships as associations of discrete individuals. But in fact, our relationships — with other people and all life — define who we are, and by impoverishing these relationships we diminish ourselves. We *are* our relationships.

"Interdependency," which implies a conditional relationship, is far too weak a word for this non-separation of self and other. My claim is much stronger: that the self is not

absolute or discrete but contingent, relationally-defined, and blurrily demarcated. There is no self except in relationship to the other. The economic man, the rational actor, the Cartesian "I am" is a delusion that cuts us off from most of what we are, leaving us lonely and small.

Stephen Buhner calls this cleavage the "interior wound" of separation. Because it is woven into our very self-definition, it is inescapable except through temporary distraction, during which it festers inside, awaiting the opportunity to burst into consciousness. The wound of separation expresses itself in many guises, ranging from petty but persistent dissatisfactions that, when resolved, quickly morph into other, equally petty dissatisfactions in an endless treadmill of discontent, to the devastating phthisis of hopelessness and despair that quite literally consumes the spirit.

Riding any vehicle it can, the pain from the interior wound manifests in a million ways: an omnipresent loneliness, an unreasonable sadness, an undirected rage, a gnawing discontent, a seething resentment. Unaware of its true source, we assign it to one or another object, one or another imperfection in the outside world. We then seek to forestall the pain by suppressing its vehicles: getting life under control. In a personalized version of the Technological Program, we identify happiness with the maximum possible insulation from danger, dirt, and discomfort. But of course, this insulation cuts us off even further from the world and, so, exacerbates the separation that is the actual source of the pain.

A saying goes, "Seek not to cover the world in leather — just wear shoes." It is a spiritual cliché that happiness is not to be found by engineering the world so that everything goes your way: such happiness is transient, doomed. But that's the way we act, culturally and individually, much of the time. Someday, everything will be perfect and we'll be able to relax and be happy forever.

The futility of the personal and collective Technological Program of complete control finds incontrovertible demonstration in the phenomenon of boredom, which shows us the human condition when the Technological Program *succeeds*. What is the ground state, the default state of the human being when everything is under control, when no personal calamity imminently threatens? What happens if we just sit here, with nothing to do and nothing that needs to be done?

Boredom is so endemic to our culture, particularly among youth, that we imagine it to be a near-universal default state of human existence. In the absence of outside stimuli we are bored. Yet, as Ziauddin Sardar observes, boredom is virtually unique to Western culture (and by extension to the global culture it increasingly dominates). "Bedouins," he writes, "can sit for hours in the desert, feeling the ripples of time, without being bored".[19]

Whence comes this feeling we call boredom, the discomfort of having nothing to occupy our minds? Boredom — nothing to do — is intolerable because it puts us face to face with the wound of separation. Boredom, that yearning for stimulation and distraction,

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[19] Sardar, Ziaduddin "Cyberspace as the Darker Side of the West." *The Cybercultures Reader*. Routledge, 2000, p. 742.

for *something* to pass the time, is simply how we experience any pause in the program of control that seeks to deny pain. I am not suggesting that we ignore the causes of pain. Pain is a messenger that tells us, "Don't do that," and we are wise to heed it. But we step far beyond that when we suppose, even when the wound has been inflicted and the consequent pain written into reality, that we can still somehow avoid feeling it. A saying of Chinese Buddhism goes, "A Bodhisattva avoids the causes; the ordinary person tries to avoid the results."

Apparently, boredom was not even a concept before the word was invented around 1760, along with the word "interesting".[20] The tide of boredom that has risen ever since coincides with the progress of the Industrial Revolution, hinting at a reason why it has, until recently, been an exclusively Western phenomenon. The reality that the factory system created was a mass-produced reality, a generic reality of standardized products, standardized roles, standardized tasks, and standardized lives. The more we came to live in that artificial reality, the more separate we became from the inherently fascinating realm of nature and community. Today, in a familiar pattern, we apply further technology to relieve the boredom that results from our immersion in a world of technology. We call it entertainment. Have you ever thought about that word? To entertain a guest means to bring him into your house; to entertain a thought means to bring it into your mind. To be entertained means to be brought into the television, the game, the movie. It means to be removed from your self and the real world. When a television show does this successfully, we applaud it as entertaining. Our craving for entertainment points to the impoverishment of our reality.

All the causes of boredom are permutations of the interior wound of separation. Aside from the impoverishment of our reality, we are uncomfortable doing nothing because of the relentless anxiety that dominates modern life. This in turn arises from the paradigm of competition that underlies our socioeconomic structures, which (as I will explain in Chapter Four) is written into our conception of self. Second, we desire constant stimulation and entertainment because in their absence, we are left alone with ourselves with nothing to distract us from the pain of the wound of separation. Finally, technology contributes directly to boredom by bombarding us with a constant barrage of intense stimuli, habituating our brains to a high level of stimulation. When it is removed, we suffer withdrawal. We are addicted to the artificial human realm we have created with technology. Now we are condemned to maintain it.

That we have unprocessed pain inside us, waiting for any empty moment so that it may assert itself and be felt, is not so surprising given that a main imperative of technology is to maximize pleasure, comfort, and security, and to prevent pain. The urge to make life easier, safer, more convenient, and more comfortable has motivated technology from its inception. When the inventor of the Levallois flint-working technique produced his first spearhead, his contemporaries enthusiastically adopted it because it made life easier: "Not nearly so much work, now, to produce each spearhead." The new

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[20] Hodgkinson, Tom. "A Philosophy of Boredom," *New Statesman*, March 14, 2005. This is a review of Lars Fredrick Svendsen, *A Philosophy of Boredom*. Reaktion Books, 2005. Translation by John Irons.

technique was so much more efficient. Life got easier. Need I cite more examples? Today we go to the pharmacy cabinet to apply technology to the alleviation of any discomfort, no matter how minor. Have a hangover? Take an aspirin. Have a runny nose? Take a cold medicine. Depressed? Have a drink. The underlying assumption is that *pain is something that need not be felt*. And the ultimate fulfillment of technology would be to discover the means to eliminate pain and suffering forever.

Maximizing pleasure and eliminating pain is the goal of the Technological Program taken to its logical extreme. An articulation of this goal in fairly pure form is David Pearce's "Hedonistic Imperative," which advocates the total elimination of suffering through genetic engineering, nanotechnology, and neurochemistry by disabling pain receptors, stimulating pleasure centers, and so on, as foreshadowed by today's happy drugs but also by the entire medical apparatus that seeks to remove or palliate symptoms. The mood-altering drugs, most notably the "selective" seratonin uptake inhibitors, are applied on the premise that the real cause of mental anguish is low levels of seratonin and norepinephrine in the brain. Raise levels of these neurotransmitters and the anguish goes away. The treatment is a success!

Underneath the assumption "the pain need not be felt" lie some even deeper assumptions. One of these is disconnection. The low seratonin levels are viewed in isolation from a patient's whole being, like a car with a broken part. This mechanistic paradigm denies the organic nature of a body, in which the health of any part reflects the health of the whole. It denies that there are reasons for the low seratonin, and reasons for the reasons, and reasons for those, spreading out to encompass the patient's whole being.

Related to disconnection is a further assumption, that we live in a dead and purposeless universe. Events happen essentially at random; there is no orchestrating purpose to make each event significant and right. Depression did not a serve a higher purpose because there is no such thing as a higher purpose, no reason except the identifiable, mechanistic reason, and therefore no cause to expect the pain will return in another form when this avenue is blocked. Reality is infinitely manageable.

If, however, we see technology (both on the personal and the collective level) as a means not to eliminate pain but to defer it, then it stands to reason that it will be waiting for us in any empty moment. All the more so if the very effort to defer pain generates new pain: the new problems caused by the previous technology, the symptoms caused by the drug itself.

In a connected, purposeful universe, managing the pain is like patching a leaky pipe when the water pressure is too high. Fixing one leak ensures another will spring elsewhere. Meanwhile, the pressure keeps rising. The apparatus of civilization springs one leak after another, as frantically we try to seal the spreading cracks.

It has been said in a Judaic-Christian-Islamic context that separation from God, the Fall, is the source of all suffering. Buddhism names attachment as the cause of suffering, but careful examination reveals its teaching to be nearly identical to that of esoteric Western religion. Attachment, to the impermanent, delusory ego self and all those things that reinforce it, maintains a separation from the rest of the universe from which we are not actually separate. Attachment is separation. As for separation from God, what is

God but that which transcends our separate selves and interpenetrates all being? On the origin of suffering, Eastern and (esoteric) Western religion are in fundamental agreement.[21]

In everyday human life, happiness and security come from strong connections — to family, community, nature, place, spirit, and self — and not from "independence" whether psychological or financial. Because the story of technology is one long saga of widening separation from nature, widening separation from community (because of specialization and the mass scale of society), widening separation from place (because of our highly mobile and indoor-centered lifestyles), and widening separation from spirit (because of the dominant scientific paradigms of the Newtonian World Machine), it is no wonder that the pain of the human condition has only grown throughout the modern era. Even as outright physical hardship has declined, psychological suffering in the form of loneliness, despair, depression, anxiety, angst, and anger has grown to epidemic proportions. Even when our technology succeeds in holding off the external consequences of separation, we still internalize it as a wound, a separation from our own souls.

A final indication of the nature of the wound lies in the phenomenon of greed. When I ask my students the source of global problems such as pollution, they invariably cite greed, which they see as a fundamental characteristic of human nature that can be controlled but never eliminated. But greed like boredom is absent in most hunter-gatherer cultures based on a more open conception of self. Acquisitiveness is merely another attempt to fill the void and assuage the ache of separation, as if the accretion of more and more self, in the form of possessions, could compensate for the profound denial of self that is separation. Tellingly, we often use acquisitive metaphors for the ways we distract ourselves from the existential unease we call boredom: have a cigarette, have a drink, have something to do. It is by having as well that we strive for security, whether material — having possessions — or interpersonal, even to the extent of "having sex." But of course, no matter how much accrues to the discrete and separate self, that self is still fundamentally alone in the universe.

Next section (online) ➦

[21] Hinduism is similar to Buddhism in its explanation of suffering. As for Taoism, suffering could be said to result from ignorance of the Tao; that is, resisting the natural flow of life. This too is a form of separation.