

Revisiting the End of History, the Coming of the New Historical Era

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November 6, 2001

I would like to acknowledge the Shapiro Family and the Elliott School, both the management and the faculty. They have been extremely welcoming and in effect, if I can steal something from Mr. Bob Dylan, they gave me “shelter from the storm.” In this case, the storm was the one that blew up in Florida, a year ago today, if I’ve got my dates correct. What they did in effect, was give me the ability to realize two objectives that I set for myself towards the end of my time in government. I decided that I wanted to continue to be with young people, which may seem a little odd since I was thought to have been a senior member of the Administration. But twenty-somethings were an important part of the talent-base within the White House, and youth was the order of the day. I thought that it would be a good thing to continue to be in contact with the generation of people who will receive whatever errors we made and have to make good on them.

The other thing I wanted to do was to occupy the future. Thanks to the extraordinary arrangements of the last Administration as regards the role of the Vice President, I had the opportunity to participate in every area of foreign policy, bar none. But it seemed to me that there was an aspect to foreign policy that people had been too busy to pay much attention to: that events seemed to be accelerating; that the future seemed to be moving towards us faster, things seemed to be converting more rapidly from theory and even fantasy into actual fact. So for example, we found ourselves engaged in a major international trade dispute over genetically modified foodstuffs. Only a few years before, this was a laboratory issue. I could also point out that during the first few months of his term, President Bush wound up spending an intense period of time on the subject of stem cells. Certainly not so long ago, this was a purely scientific issue, and yet all of a sudden it transformed -- far more abruptly than the government anticipated -- into a huge social, scientific and economic issue.

I had the general feeling that major events were coming towards us faster and faster. The government itself however was essentially equipped only to deal with those things that were so urgent as to force the allocation of resources, including the intellectual resources and energies of the handful of people at the top.

So I formed a plan to create in the White House some kind of system that would look as systematically as possible into the more distant future, arbitrarily 10, 15, 20 years. I understood very well that nobody can predict the future with precision, and I also understood that past senior officials have had and even tried the same idea. Despite these cautions, it seemed to me that the default approach would be to let the future wash over us again and again, and the costs to the country of experiencing this kind of surprise looked to be increasingly expensive. I used to have this mental image. I’m sorry to tell you it comes out of a science fiction movie. A giant meteor is hurtling toward the earth.

Would we detect it in time to do something about it? Well if you substitute for the image of the meteor some major historical event, some real shift in the pattern of human historical development rapidly moving towards us (or us moving towards it), the question would be whether we would be able to perceive it in time, to have thought at least a little about it, before we're overtaken by its presence and consequences.

In his introductory remarks, Dean Harding mentioned a concept of mine called "Forward Engagement," and he described it with complete precision. During the 2000 Campaign, in a few speeches related to this subject, we identified some new kinds of national security issues: international pandemics such as HIV/AIDS, antibiotic resistant tuberculosis, or malaria out of control again (and in fact killing more people than HIV/AIDS in sub-Saharan Africa); major forms of global environmental disruption; trans-national crime; trans-national terrorism; and the trans-national spread of weapons of mass destruction or the technologies for producing them. Forward Engagement was the name we gave to a policy of recognizing and dealing with such challenges sooner rather than later.

But what bothered me about these "new" problems was that we were already knee-deep in them. It occurred to me that this group of new security threats might not be the only set of things approaching us: that beyond this wave, there might be yet another, and the question in my mind was what might that next wave be carrying towards us. Would it be possible to set in motion some system that would permit us to visualize these possibilities and to think about them? So that's what I had intended to do in the White House. I must say that if things had worked out that way, I'm not sure that I would actually have had time to carry out such an experiment. But the intent to do so was there and I believed in its necessity.

Be that as it may, upon arriving here I decided to try my experiment in a somewhat scaled down form. One of the courses I teach is for graduates, in a format called "capstone" in university parlance. In a "capstone" course, graduate students work as a team rather than as individuals. Every such course is based on a scenario. In this scenario, an imaginary sponsor puts a task before the class, which then acts as if it were a consulting group or an advisory panel. The output for the semester is a group report, an executive summary, a power point briefing, and finally, an encounter with someone who is brought in to simulate the original "sponsor" of the study: someone who will not only sit and receive the views of the students but who will also challenge and interact with them so that even the last session is a learning event.

So over the last two semesters I have been doing this, and we just completed the second semester. I consider the graduate students to have been my colleagues in this endeavor. I believe that what they have turned out is a serious effort to address some of the questions that I put to them. And I thought you'd be interested in hearing how this has worked.

At the beginning of this semester I wrote a letter from "the President of the United States," to my students addressing them as members of a special "task force." In this letter the imaginary president says: The task of any American president is not only to

meet the challenge of the hour, but to do everything possible to hand on the essential idea of our country – which I think we can agree to call ‘liberal democracy’—in the best possible condition. By liberal democracy, I mean a system of representative government based on the individual person as the fundamental unit of social accountability and on the sovereignty of the people as the basis for legitimate government.

Some have argued that liberal democracy is the end of the line in terms of human political evolution, which explains the front end of the title of this speech, “Revisiting the End of History.” As you will have recognized, that phrase was from Francis Fukuyama’s famous essay written at the time of the collapse of the Soviet Union; an essay which declared that liberal democracy had triumphed, and that there would be no further political evolution. The “President,” however, is not so sure.

...having examined the findings of the panel which precedes you, [meaning last term’s group] I am left with a deep concern that liberal democracy may in fact be faced with its most severe test yet, in light of a number of powerful long-term trends.

In the field of military defense, we have achieved overwhelming dominance – but our style of warfare and our approach to the use of force is based on the requirements of a free society, and it may or may not work well against enemies who do not mass against us as armies, but who instead blend with the population even while bringing destruction among them. [That was written before September 11th but it certainly acquired additional salience afterwards.]

In the field of science and technology, we are again at the forefront – but I sense that our knowledge may be outstripping our wisdom: in particular, bringing into view multiple challenges to the value of the individual as our primary unit of social value. In fact, perhaps even challenging the definition of what it means to be human.

In the field of economics, our country has made tremendous strides by leading the way towards the creative employment of globalization. But I worry that this process, if it continues at the present rate will lead to forms of economic organization that respond to the will of no government and of no people; that the ability of government to assure responsible behavior by those who hold economic power will be destroyed.

In the field of governance, despite our many imperfections we have nevertheless attained much of what our founders dreamed. But I also see that national governments everywhere are subject to forces that erode their competence and push them in the direction of pooled sovereignty in multilateral organizations. I am concerned that this process will greatly attenuate the principle that governments are subordinate to people, and specifically, that it can erode the U.S. Constitution.

And so the “President” goes on to ask the panel to report back on what they see, looking into the future in each of these categories. And one other thing. The “President” asks the group to address the question of what might be done to improve the capacity of government to deal with the long-range future: to be able to think about the future before

what is oncoming has arrived to envelop us. So what I'm going to do in the balance of this speech is to talk to you a little bit about my thoughts and those of my students in the four corners of this effort. And I also want to offer some final conclusions about whether what we are facing is just more of the same in terms of incremental changes in human experience, or whether the future holds something unprecedented, something quite new, something representing a discontinuity in the history of our species.

Let me begin first with the economic side of the effort. On the economic side, it seemed to me that the obvious thing we needed to look at was the consequences of globalization. In my readings, I found that there are some scholars who challenge whether globalization is actually anything new. There is a school of thought which presents globalization as merely our jargon for something that has occurred cyclically in the history of capitalism. These scholars note that there have been repeated episodes of very dynamic international investment and trade: quickenings that led to booms, and booms to busts. For such scholars, globalization is just more of the same.

I'm inclined to think that this approach is perhaps a bit lacking in imaginative insight as to what globalization really means. Globalization rides on top of something that humanity has never experienced before: the ability to overcome both time and distance in all human transactions; a development propelled by the revolutionary advances that are continuously transforming our ability to manipulate and transmit information. That revolution is challenging and in many areas destroying established forms of human organization, and creating new forms in their place. It's challenging the organization of corporations, it's challenging the organization of government, it's challenging the organization of knowledge itself. This is not just some incremental change. It is brand new. It has no precedent, and it is leading to the conduct of economic activities everywhere at all times, by vast and detached multilateral, globalized corporations. That's new. Now the question is what happens if this process continues to completion, whatever that looks like, or whether it fails for some reason to go to completion.

Let me deal first with the question of failure. Globalization costs people their sense of security. I have met many people whose lives have been uprooted by the consequences of globalization. You don't work for a Senator from Tennessee without meeting people who used to work in the shoe industry, which migrated south to escape the unions and labor laws of the north, which then begin to migrate further south to Mexico, all under the rubric of globalization, and which continued on even from Mexico in the search for lowest cost, least regulation, and highest profit. You meet people from the steel industry, whose children have had to leave their home towns because there's no future for them there. And as you travel to other parts of the world, you find other people -- not economists, who don't get fired generally -- but other working people whose lives are continuously uprooted and threatened by the consequences of globalization.

So globalization has created an "anti-constituency" of people who are afraid of its consequences. Some of that fear showed itself in the streets of Seattle, Washington D.C., Prague and Genoa, in opposition to globalization. It is possible that if this resistance becomes more articulate and more widespread, the steps necessary to keep globalization

moving ahead will not be taken. That is a distinct possibility, and if that happens, then the process will stall out. We do not know of any way to further increase the general prosperity unless this process continues. So if it stalls out we will be trapped in a dead-end historically and economically: not just this country, but the world as a whole.

On the other hand, suppose globalization succeeds and goes to completion. What kind of condition would that be? There is a fear, described in the "President's" letter, that the final triumph of globalization leads to a situation in which the power of massive multilateral corporations is total, but essentially anonymous, because of globally dispersed power detached from any particular homeland, and disconnected from the authority of any particular government. The peoples of the world essentially become a labor supply at the beck and call of globalized capital. Capital will be intensely mobile, interested only in short term profit and prepared to flee anyplace, anytime, for whatever reason, and at whatever cost to the people who live where the money used to be invested. So the complete success of globalization might not lead to an era of unambiguous prosperity and well-being for all; it could lead to something quite different.

Let me talk now about security and some of its uncertainties. You can read books confidently asserting that the military dominance of the United States is established for the foreseeable future. There is in fact no competitor for us in military terms anywhere on the horizon. The problem is that for precisely this reason, our enemies are looking for other ways to upend the strength of the United States; to replay the story of David and Goliath, where they are David and we are Goliath; to find some vulnerable point that enables them to bring us down despite the tremendous disparity of power in our favor. Arguably, the attack on September 11th was calibrated to do just that. It was an effort not merely to attack the United States in some symbolic fashion but to attack the structural pillars that sustain our civilization; to attack centers of finance; to attack centers of military control; to attack centers of governance (remembering that one aircraft never reached its target here in Washington DC); and to attack the courage and the will of the people of the United States to continue as we have been.

So there very much is a possibility that notwithstanding our tremendous formal power, we could be surprised by a catastrophic end-run. In particular, I think we now know based on what has just happened to us, that if weapons of mass destruction were to pass into the control of terrorists groups, we would have to assume that they would be used. The use of a weapon of mass destruction on the territory of the United States would produce an impact on this society which I don't think that we can calculate, but which we must assume would be immense. So, in effect, we are in a race against time to prevent an event of that sort by every possible means. As a result of this realization things may now happen to the structure of the United States, to its political system, to attitudes about the relationship between the individual and the state, and to the operation of the Constitution, that are very profound; changes that would bring to pass the fear that my imaginary "President" raised in the letter which said "things may happen to us which will be hard for us to manage within the framework of a liberal democracy."

There's a member of the law school here, Professor Jeffery Rosen, who wrote an article recently that appeared in the New York Times', Sunday magazine section. He described what happened in Great Britain starting about a decade ago, after the British decided to deploy surveillance cameras for the sake of combating terrorism. Well, terrorism actually subsided in Britain for various reasons, but the process of deploying cameras did not. Professor Rosen reports that there are now two million such cameras throughout the United Kingdom staring at who knows what, sometimes to the amusement of the cadres of officials who have been hired to monitor the screens. The only thing that keeps this from constituting a true and deep threat to British liberty is: 1) the attitudes of the British themselves, including those who are watching those screens and 2) the fact that the British authorities have not yet interneted the outputs of these cameras. But interneting the outputs of surveillance systems is a relatively easy job technologically. And more systems are coming along that not only can stare, but recognize faces in the crowd, and beyond that there are machines coming that can begin to read the emotions behind those faces. The capacity to internet information about people is already in place. The amount of information about people is immense, both good information and garbage. There is a relatively thin wall separating the kinds of privacies and anonymity that we have associated with our freedom, from an all-knowing state using cutting edge technology to create permanent and truly omniscient dossiers about everyone of us throughout our lives. It is deeply unsettling. But the choices are not easy, because they involve the race to deal with the threat against us from terror, especially in the upper ranges of violence.

On the subject of governance. Governance is an area where we Americans are a little bit schizophrenic. We are all for other countries submitting to international law and to international institutions. But when it comes to submitting to these things ourselves, we often balk. I balk, and I'm supposed to be on the liberal side of the divide. We balked for example, when it came time to think of subordinating US standards for various environmental matters to international codes. I remember back in the '80s, staffing my boss in the Senate, beginning to notice a peculiar change in the mail. Suddenly, environmental groups that normally should have been on the side of multilateral cooperation were writing in, expressing deep concern that organizations such as the GATT were going to override US legislation on environmental standards: legislation that these groups had fought hard to get and which they considered to be superior to international standards. And so all of a sudden, people who had supported multilateral activity in the world, became afraid of it and began opposing. At present, the United States government resists the idea of joining in the establishment of a global criminal court, not because we don't think that there are global crimes or global criminals, but because we have balked at the idea of allowing constitutional protections for Americans to be possibly overridden by a court whose judges were appointed by un-elected international officials.

And so it goes. We will find ourselves repeatedly asked to subordinate our freedom of action as a nation for the sake of a supposed tradeoff: the tradeoff being more stability in the world, more safety. These are not going to be easy choices and cumulatively they may well erode what we previously thought to be core values of liberal democracy in the United States. What trade-off should we make?

Let me come now to the fourth quadrant: to the realm of science and technology. Quite recently, I came across a presentation by David Rejeski of the Woodrow Wilson International Center for Scholars here in town. His briefing, called "The Changing Environment for Governance," had one slide that showed notional curves depicting different types of change. One curve illustrates change by slow degrees; one illustrates exponential change; one of them represents "step" change; and one illustrates radical, discontinuous change. Some of the things we've been talking about to this point represent slow change, some may be even exponential change, but in the area of science and technology, I think we need to talk about radical change; about "tipping points;" about a fundamental redirection of human events. In other words, we need to talk about what I meant by the second half of the title of this lecture, -- "The coming of the New Historical Era."

If you look at the most portentous new forms of science, the list would include: increasing command over the shape of all life including our own through genetics; increasing mastery of the ability to understand the universe through advanced theory supported by "super"-calculation; and increasing control over matter.

During the 2000 campaign, I had a discussion about this, of all places, on a bus going to debate preparation for the candidate. It happened that I was sitting next to the person who was then the Vice President's science and technology advisor, and we were talking about the future. He said to me, "In about 10 or 15 years, maybe 20 at the extreme, I think that we will be enveloped in computational systems that are omnipresent, internetted, and sentient." "What do you mean sentient?" I said. He said "Aware of themselves and thinking autonomously." And then he said, "But don't worry. By that time we will be proficient enough in genetics to alter ourselves so that we can keep pace with what our machines can do." And I remember thinking very clearly, "This is not good news."

I assure you that my colleague was not being flippant. He was not a man to make foolish forecasts. Inspired by his comments, I began to read into the subject and discovered that there were Nobel Prize winners and pioneers in the development of the internet who were forecasting exactly the same things: that we will have mastery over who we are and what we are; that we will have machines that increasingly begin to blur the line as to what is sentient and what is not. And that in the course of our interaction with these machines we will blur the line between them and ourselves.

About ten days ago I visited the NASA Ames Laboratory in Palo Alto. I walked into a lab where, at the first workstation someone who had sensors wired to his forearms was feeding signals through a flight simulator to a virtual airliner which appeared as an image on a high definition television screen. He was flying that airliner, without moving his body. Further on down, there was someone whose head was dotted with taped-on electrodes. Someone who was in fact a martial artist, meditating. We were able to observe the composition of his brainwaves on a computerized display. One could see that he was able to voluntarily focus some of the output of his brain in ways intended to explore the possibility of direct communication with machines. The scientists at Ames believe that we will also see the development of systems implanted in the human body,

designed to speed communications between people and machines. At a certain point you begin to wonder where the boundary line will be.

In fact I have a friend of 30 years; a specialist in virology, who works at a major institution in the metropolitan area. His study of viruses in the natural world has caused him to become interested in all forms of mutation: not only those of natural viruses but the mutations of computer “viruses,” and he has said for some time that he believes that these two processes are driven by similar laws. Following that line of logic, and given the speed at which computational viruses can mutate, he speculates that we may have a little accident one of these days in the form of a mutation within a large-scale information network, which suddenly becomes a lot smarter than we intended it to be. My friend has said to me “In the end, the biggest single challenge for humanity may be to make way for what we are creating.”

So that leaves the question of computation and of mastery over matter. In the field of computation, you may have read recently about the possibility of quantum computing. Quantum computing would be to silicon-based computing as silicon-based computing is to counting on your fingers. The consequences of the power to compute at that level in terms of social change are staggering. I think you would have to find a very good science fiction writer, not a scientist, to guess what lies down that path. But the power to drive change at this rate is coming. And one of the ways it will come is through nanotechnology. Nanotechnology is the ability to manipulate matter on the scale of individual molecules and atoms: to create circuits and machines on that incredibly small scale.

It was only eight years ago that the first predictive analysis on the existence of this technology was published. It is now a dawning reality. You may have read in the newspapers -- not in the science section, but the business section -- that some of our corporations have been developing “nano-tubes” based on a particular kind of carbon molecule, and that using these, they have gone on to create molecular size computer circuits; simple circuits, the basic elements of computation, but nevertheless functioning circuits. So the baby-steps have already been taken.

There is a 200-page study put out by a sub-panel of the National Science Foundation, dealing with nanotechnology. Read that, and you know that we are on our way to something revolutionary. Nanotechnology is going to represent the fusion of molecular science, of biology, of what we know about the evolution of systems. It will produce deep changes in our lives. One forecast for nanotechnology for example, is that it will enable the pharmaceutical industry to create medicines that are precisely tuned not only to the structure of particular diseases but to the structure of each patient at the genetic level. If this kind of technology pans out, forecasts of greatly extended human lifetimes become credible.

There are such interesting questions. Such as what happens to the sense of equity and balance in a society, when some part of the population has the means to benefit from these things but others don't? What happens internationally when billions of people

continue to die at the age of 35/40, while some much smaller part of the global population begins to enjoy a healthy life into the 9th, 10th or even 11th decade?

I have been telling my students that these are the kinds of things that may well be happening when they are at the peak of their careers. It is entirely possible of course that what they may be wrestling with is “merely” the further evolution of the global economic system, or the next incremental challenge to the security of the United States. But it is also possible that something is coming toward us that is utterly different from the past.

Now one of the things that I found interesting in my readings were frequent, though vague, references to the possibility that all of this change leads in the direction of some kind of major shift at the spiritual level. I reserved that for the last part of my comments tonight. I’ve been a lifelong practitioner in a world of hard-edged things. My specialties have been things like biological warfare, chemical warfare, radiological warfare, nuclear warfare, arms control, alliance management, Bosnia, Iraq, international trade, you name it. But the subject matter was always quantifiable or at least palpable. Nevertheless, it seems right to me to end this speech on a different plane.

What does it mean to be spiritual? It involves a sense of something beyond the material self, a sense of transcendence, a sense of contact with something that’s eternal, something that provides a source of meaning in life or orientation to existence. It may or may not be an organized religion, but if it is spiritual, it is these things. Now suppose that humanity is coming up to what I would like to call the second Galileian revolution. The first Galileian revolution was a real comeuppance. It was a deep shock for thinking people to be told that God had not so organized creation as to place the Earth at the very center. The next shock -- the “second” Galileian revolution - - is likely to be the discovery that humankind is not the end or even the main object of creation: proof that we are just a face in the crowd, so to speak.

I once spent an extraordinary afternoon in the countryside of West Virginia with Dan Goldin, the retiring director of NASA; with Louis Friedman, the head of the US Planetary Society; Raul Sagdeeff (who before settling in the United States had been the head of the Soviet Union’s space program); and with the late Carl Sagan. The subject of the discussion that day was the purpose of space exploration. And the answer given that afternoon, was that the purpose of space exploration should be to determine whether there is life -- especially intelligent life -- elsewhere in the cosmos. And how were we going to do this? First, my scientific friends said, it is only a matter of time before planets will be discovered in orbit around stars other than the sun. And this has indeed happened, if you read your science news. Next, they said, we are going to put sensors in orbit around the Earth that are capable of detecting the presence of methane in the atmospheres of these planets (if they have atmospheres), because methane is a signature for the existence of life. We are going to be able to see some extraordinary things. And we may well answer the question raised on that fall afternoon.

But we don’t have to peer at other solar systems to search for sentient life forms. We can look around us. I think it is becoming apparent that sentience is not just an all or nothing

matter; that we've not got the only franchise on the planet. It may be illuminating to think in terms of gradient. Are whales sentient? Dolphins? Orangutans, which are almost identical to us genetically? And what happens if machines approach sentience? What happens, if because of our dependence upon them, we have to find a way to blend with them? And what happens, if in the course of that blending the nature of human consciousness undergoes a deep change? These are the kinds of questions that are approaching in the not too distant future.

So I do conclude, after this investigation, that it would pay for our country to begin to focus better on events that are approaching us at such high speed. I think it is very unfortunate that the Congress of the United States did away with the Office of Technological Assessment, its only instrument for really looking at the significance of new science and technology. I think it is inappropriate that the relationship between the Presidency and the Office of Science and Technology Policy are generally tenuous. I think it is necessary for us to begin to assemble the kind of talent that has the courage to look at the future, under political leadership at top levels in the White House, and at various other levels within the Executive Branch, and certainly within the Intelligence community where some of this kind of thing is actually going on, if fitfully. The future is racing towards us. Vast, far-reaching changes are ahead of us and we had best begin to learn how to think about them now. Thank you.

Leon Fuerth's Capstone Reading List

Reports:

Global Trends 2015: A Dialogue About the Future With Nongovernment Experts. Central Intelligence Agency: National Intelligence Council, December 2000. Available at: <http://www.cia.gov/cia/publications/globaltrends2015/>

Challenges of the Global Century: Report of the Project on Globalization and National Security. Institute for National Strategic Studies, National Defense University, 2001.

Roco, Mihail and Bainbridge, William Sims Ed. "Societal Implications of Nanoscience and Nanotechnology." NSET Workshop Report. National Science Foundation. March 2001. Arlington, VA.

Books:

Broderick, Damien. The Spike. New York: Tom Doherty Associates Book, 2001.

Dyson, George B. Darwin Among the Machines. 1997.

Friedman, George and Meredith. The Future of War. 1996.

Friedman, Thomas. The Lexus and the Olive Tree. 1999.

Hardt, Michael . Empire. 2000.

Huntington, Samuel P. The Clash of Civilizations and the Remaking of World Conflict. 1996.

Kaplan, Robert. The Coming Anarchy. 2000.

Kennedy, Paul. Preparing for the Twenty-First Century. 1993.

Kurzweil, Ray. The Age of Spiritual Machines. New York: Penguin Group, 1999.

Lake, Anthony. 6 Nightmares. Boston: Little, Brown and Company, 2000.

Mazarr, Michael J. Global Trends 2005. New York: Palgrave, 1999.

Micklethwait, John. A Future Perfect: The Challenge and Hidden Promise of Globalization. New York: Crown Publishers, 2000.

Morrison, Reg. The Spirit in the Gene: Humanity's Proud Illusion and the Laws of Nature. Ithaca, NY: Cornell University Press, 1999.

Our Global Neighbourhood: The Report of the Commission on Global Governance. Oxford: Oxford University Press, 1995.

Rosecrance, Richard. The Rise of the Virtual State: Wealth and Power in the Coming Century. New York: Basic Books, 1999.

Rosen, Jeffrey. The Unwanted Gaze: The Destruction of Privacy in America. New York: Random House, 2000.

Van Creveld, Martin. The Transformation of War. 1991.

Wright, Robert. Nonzero: The Logic of Human Destiny. 2000.

Articles:

"A Globe Clothing Itself With a Brain." Wired. 1995.

"Artificial Intelligence for the New Millennium." The New York Times, Jun 29, 2001.

"A Watchful State." The New York Times. 10/7/01. Section 6, page 38.

Battlefield Space. The New York Times Magazine, Aug 5 2001.

"Can the I.M.F. Tame the Capital Beast?" The New York Times. 10/14/01. Section 3, page 5.

“Danny Hillis’s Vision.”

http://white.ece.ncsu.edu/nnresearch/Items/danny_hilliss_vision.htm

“Disputes on Electronic Message Encryption Take On New Urgency.” The New York Times. 9/25/01. Section C, page 1.

“Euro Deposes the Mark, Grieving Many Germans.” The New York Times. 8/30/01.

“Evolution Revolution.” Wired, Jan 1997.

“The Faceless Enemy.” The New York Times. 10/14/01. Section 7, page 11.

“Fertility Ethics Authority Approves Sex Selection.” The New York Times. 9/28/01. Section A, page 16.

“IBM creates a Tiny Circuit Out of Carbon.” The New York Times, Aug 27, 2001.

“In the Next Chapter, Is Technology an Ally?” The New York Times. 9/27/01. Section G, page 1.

“Liquid Logic.” Wired. September 2001.

“Living Under an Electronic Eye.” The New York Times. 9/27/01. Section G, page 1.

“Mr. Order Meets Mr. Chaos.” Foreign Policy, May-Jun 2001.

“On the Threshold: Environmental Change as Causes of Acute Conflict.” International Security, 1991.

Postel, Sandra L. “Dehydrating Conflict.” Foreign Policy. Sept/Oct 2001.

The Recycled Generation. The New York Times Magazine, Jan 30 2000.

“Touch of Evil.” Reviewed by Jeff Stein. The Washington Post. 10/21/01. Book World Section, page T05.

“Why the future doesn’t need us.” Wired, Apr 2000.

“Will Globalization Go Bankrupt?” Foreign Policy. Sept/Oct 2001. Other: Rejeski, David. Slide Presentation “The Changing Environment for Governance.”
<http://wwics.si.edu/mediaguide/rejrschint.htm#plan>