

# Timeline

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## **A Wake-Up Call**

The public seems to have forgotten about the dangers of nuclear weapons now that the Cold War is over. But many high-ranking military officers are sufficiently alarmed about the possibility of their accidental use to urge abolishing all nuclear weapons, including those in the U.S. arsenal.

One Admiral, Noel Gayler, former U.S. Commander in Chief, Pacific Command, puts it this way: "Does nuclear disarmament imperil our security? No, it enhances it."

Admiral Eugene Carroll, former director of U.S. military operations for all U.S. forces in Europe and the Middle East, states: “Nuclear weapons are the sole military source of our national insecurity. We, and the whole world, would be much safer if nuclear weapons were abolished.”

Recently, a full-page ad in *The New York Times* and other major newspapers called for the U.S. to take the lead in ridding the world of all nuclear weapons. Among those who signed the ad: Admiral Stansfield Turner, former Director of Central Intelligence and Commander-in-Chief, Allied Southern Forces, Europe; General Andrew Goodpaster, former Supreme Allied Commander, Europe; Admiral William J. Crowe, Jr., former Chairman, Joint Chiefs of Staff; General Charles Horner, former Commander, Coalition Air Forces, Desert Storm; Admiral William A. Owens, former Vice-Chair, Joint Chiefs of Staff. The ad calls for immediately de-alerting the thousands of land- and sea-based missiles now ready to launch in minutes, and deeply reducing nuclear stockpiles.

One of the first high-ranking military officers to speak out for abolishing nuclear weapons was General Lee Butler, who, as Commander-in-Chief of United States Strategic Air Command, had planning and operational responsibilities for all of America’s strategic nuclear forces. Butler retired from the military in 1994, fully intending not to comment publicly on national security matters. But two and a half years later, he could no longer stay quiet about “my deepening dismay as a citizen of this planet.”

In *Waging Peace Worldwide*, the journal of the Nuclear Age Peace Foundation, Butler tells about his experiences in the military and what led him to devote his life toward the elimination of nuclear weapons.

**Butler:** I get a lot of questions like, “If you had been President Truman, would you have made the decision to drop atom bombs on Japan?” “Was this a revelation, was it an epiphany, what was the catalyst for your change of view?” The questions go to the issue of when I had the responsibilities as the commander of the nuclear forces, as a nuclear advisor to the president and, perhaps most particularly, as the person who devised the nuclear war plan. Did these responsibilities give me pause? Were there some reservations there?

The evolution of my views was not an epiphany, not some road to Damascus revelation. From the very outset, the nuclear arena was superimposed with a blanket of secrecy that was virtually impenetrable. Access to the knowledge and access to the levers of power that control this arena was reserved to a very small number of people throughout its history in this country and in the Soviet Union.

I was commissioned as a lieutenant in June 1961. I became the commander of the nuclear forces of the United States in January 1991, almost 30 years later to the month. Until the day I assumed those responsibilities, I had never been given access to the nuclear war plan of the United States in its entirety, even though in Washington I had policy responsibilities that directed the plans. I knew nothing about the submarine operations of the strategic nuclear forces of the United States, and I had no idea how the decision process took place that would lead to a command from the President of the United States to unleash nuclear war and retaliation for a presumed strike.

## **Deepening Doubts**

Up to that point I had developed a series of reservations and doubts that progressively deepened. I had no basis for understanding whether these concerns were based on lack of information and insight or whether they were rooted in the reality of bureaucratic processes run amuck by the intrusion of the self-serving profit interests of the military-industrial complex, by the collision of cultures and turf in the Pentagon for budget dollars, or simply by the towering forces of alienation and isolation that grew out of the mutual demonization between the U.S. and the Soviet Union over a period of 45 years. I just didn't know.

Beginning in early 1991, I went through a process that very quickly accelerated and confirmed my worst fears and my worst concerns. What we had done in this country, what I believe happened in the Soviet Union, and what I think will inevitably happen in any country that makes the fateful decision to become a nuclear power—to acquire the capability to build and employ nuclear weapons—is this: the creation of gargantuan agencies with mammoth appetites and a sense of infallibility that consume infinite resources in pursuit of a messianic vision of a demonization.

## **A Chilling Ballet**

In those responsibilities of commander of the forces responsible for the day-to-day operational safety, security, and preparation to employ those weapons, I was increasingly appalled by the complexity of this ballet of hundreds of thousands of people managing, manipulating, controlling, and maintaining tens of thousands of warheads and extremely complex systems that flew through the air, were buried in the bowels of the land, or patrolled beneath the seas of the world.

The capacity for human error, human failure, mechanical failure, misunderstanding, was virtually infinite. I have seen nuclear airplanes crash under circumstances that were designed to replicate—but were inevitably far less stressful than—the actual condition of nuclear war. I have seen human error lead to the explosion of missiles in their silos. I have read the circumstances of submarines going to the bottom of the ocean laden with nuclear missiles and warheads because of failures, mechanical flaws, and human error. I read that entire history, and when I came away from it—because I was never given access to it before—I was chilled. I was chilled to the depth of my strategic soul.

Secondly, consider my responsibilities as a nuclear advisor. Every month of my life as a commander of the nuclear forces, I went through an exercise called the Missile Threat Conference. It would come at any moment of the day or night. For three years I was required to be within three rings of my telephone so that I could answer a call from the White House to advise the President on how to respond to nuclear attack. The question that would be put to me in these conferences, and as it would be in the event, was “General Butler, I have been advised by the Commander-in-Chief of the North American Air Defense Command that the nation is under nuclear attack. It has been characterized thusly. What is your recommendation with regard to the nature of our reply?”

That was my responsibility, and about half the time that call came in the middle of the night as Dorene and I lay in our bedroom. I had to be prepared to advise the President to sign the death

warrant of 250 million people living in the Soviet Union. I felt that responsibility to the depth of my soul, and I never learned to reconcile my belief systems with it. Never.

My third responsibility was to devise the nuclear war plan of the United States. When I became the Director of Strategic Target Planning—another hat that I wore as the Commander of the Nuclear Forces—I went down to my targeting room, many floors beneath the surface. I told my planners that we were going to get to know each other very well because I wanted to understand the plan in its entirety. I think this story is the most graphic illustration of the evolution of my views and my concerns and, ultimately, my convictions. When I began to delve into that war plan, I was absolutely horrified to learn that it encompassed 12,500 targets. I made the personal commitment—because I saw it as absolutely integral to my responsibilities and the consequences of that targeting—to examine every single one of them in great detail.

## **Ending the Madness**

It took me three years to complete this analysis but only three months to be convinced that it was the most grotesque and irresponsible war plan ever devised by man, with the possible exception of its counterpart in the Soviet Union, which in truth probably mirrored it exactly. Because what that plan implied was, among other things, in the event of nuclear war between two nations, in the space of about 16 hours 20,000 thermonuclear warheads would be exploded on the face of our planet, signing the death warrant not just for 250 million Soviets, but for mankind in its entirety.

The second thing that I began to grasp was that neither in the Soviet Union nor in the United States did any of us ever understand those consequences, because the calculation as to the military effectiveness of that attack was based on only one criterion, and that was blast damage. It did not take into account fire; it did not take into account radiation. Can you imagine that? We never understood, probably didn't care about, and certainly would not have been able to calculate with any precision, the holistic effects of 20,000 nuclear weapons exploding virtually simultaneously on the face of the earth.

That was the straw that tilted my conviction with regard to the prospects of nuclear war, and ultimately to an unavoidable responsibility to end this. To end it! And by the grace of God I came to that awareness and I inherited my responsibilities at the very moment the Cold War was ending and, therefore, I had the opportunity to end the madness.

So in those three years I did what I could to cancel all of the strategic nuclear modernization programs in my jurisdiction, which totaled \$40 billion. I canceled every single one of them. I recommended to the President that we take bombers off nuclear alert for the first time in 30 years, and we did. I recommended that we accelerate the retirement of all systems designed to be terminated in present and future arms control agreements, and we did. We accelerated the retirement of the Minuteman II force. We shrank the nuclear warplanes of the United States by 75 percent. By the time I left my responsibilities, those 12,500 targets had been reduced to 3,000. If I'd had my way and I'd been there a while longer, they would have been reduced to zero. Ultimately I recommended the disestablishment of my command. I took down its flag with my own hands.

## **Creeping Re-rationalization of Nuclear Weapons**

When I retired in 1994, I was persuaded that we were on a path that was miraculous, that was irreversible, and that gave us the opportunity to actually pursue a set of initiatives, acquire a new mindset, and re-embrace a set of principles having to do with the sanctity of life and the miracle of existence that would take us on the path to zero. I was dismayed, mortified, and ultimately radicalized by the fact that within a period of a year that momentum again was slowed. A process that I have called the creeping re-rationalization of nuclear weapons was introduced by the very people who stood to lose the most by the end of the nuclear era.

The French re-initiated nuclear testing at the worst possible moment, as the Comprehensive Test Ban Treaty hung in the balance. We in the United States have re-initiated the process of demonization of “rogue nations.” What a horrible, pernicious misuse of language! What an anti-intellectual dehumanizing process of reducing complex societies and human beings and histories and cultures to “rogue nations.” Once you do that, you can justify the most extreme measures to include the reintroduction of nuclear weapons as legitimate and appropriate weapons of national security.

### **A Second Chance**

That was my evolution. That’s how I transitioned from the coldness of the Cold War years, when I became an officer in the United States military at the height of the Cold War just prior to the Cuban Missile Crisis, to someone today who simply sees himself as a citizen of this planet and who was given an opportunity to step back from the brink of nuclear catastrophe. I left office feeling that this process, this extraordinary and unimaginable opportunity, had been delivered to us by a Creator who forgave our transgressions and who gave us a second chance. Now we seem determined to fritter it away. I can’t tolerate that. This is why Dorene and I have decided to devote the balance of our lives on this planet to do our best to save it.

*Last year General Butler founded the Second Chance Foundation,  
12020 Shamrock Plaza, Suite 105, Omaha, NE 68154.*

Nuclear Age Peace Foundation  
1187 Coast Village Road, Suite 123, Santa Barbara, CA 93108  
[www.wagingpeace.org](http://www.wagingpeace.org)

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## **A Question of Values**

### **By General Lee Butler**

When I speak to former colleagues about nuclear abolition, they often ask three questions. One of them is, “What are you smoking?” A lot of people are just utterly mystified. They simply cannot understand why, from their perspectives, my views have changed so dramatically. Some of my mail is pretty hateful. It has absolutely no impact on my conviction or my assessment, but I’ve had to learn to live with the loss of relationships that I treasure.

The second question is, “I understand what you’re saying and I kind of endorse it in principle, but why in the world do you think this is really even possible?” I got a question from my friend Warren Buffet when I discussed this with him. He said, “Lee, I agree in principle with what you are saying. I endorse it and I want to do what I can to help. But don’t you think that instead of zero we ought to have just one?” That is the kind of question that I get from most people. Shouldn’t we just have one? My answer is very simple. “Warren, if it’s just one, how is it that we get to have it, and who gets to decide that?” And then there’s a long pause, and the response is, “I’ve never thought of it that way.”

The third set of questions that I get really pose a challenge. That is, “Lee you’ve just lost it. Nuclear weapons prevented World War III. They are all that stand between us and the forces of barbarism, the terrorists, the rogue nations. We, above all people, have the responsibility to continue to provide the barrier, the shield that shelters civilization and all that we hold dear. Nuclear weapons are the answer.”

My response to that is really very simple. I’ve thought about this for a long time. It is the very core of my belief system. We cannot at once hold sacred the mystery of life and sacrosanct the capacity to destroy it utterly. They are irreconcilable. If we truly claim to the values that underlie our political system, if we truly believe in the dignity of the individual, and if we cherish freedom and the capacity to realize our potential as human beings on this planet, then we are absolutely obligated to pursue relentlessly our capacity to live together in harmony and according to the dictates of respect for that dignity, for that sanctity of life. It matters not that we continuously fall short of the mark. What matters is that we continue to strive. What is at stake here is our capacity to move ever higher the bar of civilized behavior. As long as we sanctify nuclear weapons as the ultimate arbiter of conflict, we will have forever capped our capacity to live on this planet according to a set of ideals that value human life and eschew a solution that continues to hold acceptable the shearing away of entire societies. That simply is wrong. It is morally wrong and it ultimately will be the death of humanity.

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## **Letters From the Fire**

**By Alma Hromic and R.A. Deckert**  
**Reviewed by Mac Lawrence**

In this treasure of a book, *Letters from the Fire*, such a beautiful relationship develops between two people on opposite sides of a war that you find yourself wishing everyone in violent disagreement could have the same kind of experience.

The authors tell their story in the form of e-mails between two fictitious, but easily recognizable people: Sasha, a Serbian woman who lives in Novi Sad during the bombing of Serbia and Kosovo by NATO forces, and Dave, an American living in Florida, who has opposed other American wars, but is solidly behind this one.

Both are fiery at the start, throwing down the gauntlet of their convictions that their side is right. Sasha is angry at the demonizing of the Serbian people by the American and European media and

at those responsible for the bombing. Dave has heard the stories about ethnic cleansing, has watched on TV as long lines of Albanians fled Kosovo, blames Milosevic and the Serbs, and is all for the bombing.

But as the e-mails fly back and forth, Sasha is able to convey some of what it means to have bombs kill people you love and destroy the very soul of your country. And Dave transforms in Sasha's eyes into a warm and caring human being rather than an American devil. It is a relationship that mellows, grows, and deepens. As the book jacket notes: "They discovered each other's mind and spirit, and transformed enmity into an extraordinary friendship."

Along the way, it is increasingly apparent to Dave (and to the reader) that Kosovo represents a complex, historical situation which, like so many in the world, can easily be oversimplified. As Sasha explains: "Balkan politics are indeed Gordian knot, and one that Balkan peoples have been struggling with for a long time. Our knots are older than your nation. America is young and brash and thinks everything can be solved by slicing through it with a sword. But our Gordian knot bleeds when struck, because that knot is the people of the region. And that is something the outsiders have not understood, and never will."

For Sasha, the symbols of the vitality of her country and its people are the city's bridges. To her, their destruction means the destruction of her country. When the first bridge was bombed, she e-mailed Dave: "The old bridge was revered and beloved and so ancient that it was referred to as 'seethrough' because you could practically see the water underneath you when you crossed it. This was a military target? If a tank had tried to cross this thing it would have collapsed under the weight... My bridge was destroyed because it was a 'supply route' between Belgrade and Kosovo. Well, look on a bloody map! Novi Sad is north of Belgrade. Belgrade is between Novi Sad and Kosovo."

Towards the end of the book, Sasha writes to Dave about the last of her three bridges. Here are excerpts from her e-mail.

*The first night we went out there, to the Zezelj Bridge, it was cool and quite cloudy; they said, oh, they won't come tonight. And they didn't. Viki and I went to the bridge at nightfall, at that instant when you just miss the streetlights coming on—one moment they are off and the next they are on and you blinked and missed the picosecond when it happened.*

*Here, in Novi Sad, the streetlights have assumed another near-mystical quality—the fact that they still exist, that they come on and off at appointed times, that they keep faith with a city at war. When we got to the bridge that first night, there were about fifteen or twenty people there already.*

*Me, I went off by myself and stood leaning over the parapet, where I watched the city lights flickering in the water, watched the river flowing under them, watched the shadow of the other, broken, old bridge as it vanished into the night. It was a quiet evening, not much traffic. People talked in whispers, as though we were in church. Someone came over with coffee in a plastic cup and asked if I was all right. I said I was, but I also took the coffee. We waited, for hours; some were wearing anoraks and others had brought blankets, and we sat huddled in the night, on the empty bridge, and talked. Viki got everyone's phone numbers and gave them ours. We were a*

tribe apart; the title “Mostovljani” (the “Bridge People”) kind of emerged spontaneously.

And people kept coming; by the time we had been there for an hour we had acquired over a hundred and fifty people by my count. At about midnight, or 1 am or so, another sixty-odd turned up, and some of the first shift went home, including me. And we made plans to go back. For as long as it would take.

There were moments. There was the moment when they fired off something at an angle that merely wounded her; our proud beauty; her concrete flesh was peeled back and her steel nerves and sinews lay exposed, and it was as though we could see her heart beating; and still she stood and defied them. We cheered. There was the time when the anti-aircraft battery hit a rocket aimed at our bridge and we could clearly see it fall, mortally injured, impotent; and we cheered again. Then, later, we could hear helicopters over Petrovaradin somewhere before shooting started again and we hunkered down and waited for something terrible to happen. Then it all died away and we went home, nerves shredded, exhilarated, proud, punch- drunk. This did not feel like suicide, Dave. I have seldom felt more vividly aware and alive in my life

Then they holed her. Several rockets came straight at the middle where the two arches met and left what looked like holes made in butter by hot knives. A traffic ban was in place already because of the increasing fragility of the super-structure, and now even pedestrians were banned. But we all turned up again, on schedule, to guard her the last, the proud, the wounded, the living bridge, symbol of our resistance, symbol of our existence. They tried to prevent us from going on the bridge, but there were only four policemen and nearly eighty of us and, anyway, they didn't have the heart for it.

Eventually they came on the bridge with us, shining their torches, and the only thing they made us do was stay close to the bank and not go too far out on the wreckage of concrete rubble and twisted railway girders and gaping holes through which you could see the Danube flowing darkly if you shone a torch straight down.

So we sat there again, and this old priest came walking past and blessed us in silence, and I cried like a child. And a babushka in a black kerchief and thick black stockings and sensible shoes came out with this cheese pie still hot from the oven and wrapped in red-and-white check tea towels, and passed it out amongst us, and then went home and came back with more of it within the hour. It was the sweetest thing I have ever tasted, that cheese pie baked with love. And we sat there and sang songs in the darkness.

“Do you think they can hear us?” a fifteen-year-old in pigtails asked me in a voice which trembled.

“Does it matter?” I said. “WE can.”

She smiled.

“What are we doing here?” a bearded young man asked me bleakly later, when the fifteen-year-old had left my side. “What is she doing here? Why are we setting up our children as targets?”

*“You don’t look old enough to have her as your daughter,” I said, choosing not to answer his real question.*

*“My children are four and seven,” he said. “They are not here. My wife is singing them to sleep. She will not talk to me because I came out here tonight. She says I am betraying my children by seeking my death. But I understand, she is afraid. And yet how could I love them all so much, my family, if I loved this city and this country and these people any less? How can I not come?”*

*I could not answer him so I hugged him, and he hugged me back, and the fifteen-year-old came back with more pie and my anonymous bearded friend smiled at me and walked away.*

*And so it went. I spent my days at the radio station, or sometimes just mooching about at home, and then at night I would go to my vigils on the bridge. And I’d come home, and Mama would cluck and tell me I looked transparent and that I’d catch the death of a cold out there, and that I looked like a wraith. And then she would realize what she was saying and make a quick sign of the cross lest God heard her and made me a real ghost. And sleep became a memory, and the wheel of fire that was the bridge we called the Defiant ate at my mind. Until I quite simply fell over one day, and fell asleep. Practically fell into a coma. I slept for twelve hours.*

*And then I woke up. And she was gone. One night I did not go to guard her, and she was gone.*

*They tell me it was a direct hit; they swear everybody got off on time, but we don’t know that for sure, and I keep wondering if the bearded man’s kids are orphans today. They say the bridge simply blew apart, and that concrete chunks the size of small refrigerators were raining down in the streets almost two kilometers away after the blast.*

*My river looks naked to me, and almost ashamed; I have gone to see them all, the three dead bridges in the Danube, and the river’s whispers are quiet and subdued. Sometimes it runs through the metal skeleton of the old bridge, the first one to die, and wails like a small child in distress, and it tears at my heart as though the child were mine.*

*Yes, I know it was not my fault. Yes, I know it was not yours either. But that last bridge, Dave, was already damaged so badly that any assertion that it was a “military target” and was destroyed because of potential usefulness to the “war effort” simply no longer makes any sense.*

*That bridge was targeted again and again and again. Because breaking it would be breaking the spirit of the people. That was the only reason it was finally blown up.*

*I know I have made more of this than is reasonable or even arguably “sane,” but I feel . . . responsible. I made myself responsible. I was one of the Bridge People, and I honestly don’t know which is worse—the knowledge that I was not there when I should have been, or the fact that I could likely have done nothing had I been. The power to save her was never mine. And I suppose that my God, in his wisdom, was sparing me from having to see TWO of my beloved bridges die before my eyes. But that doesn’t stop it hurting. And oh, how it hurts. Sasha (“Mostovljanka”)*

Jan Baughman, who writes for the website SWANS.COM, has said of the book: “It is so real that I felt at times as if I was eavesdropping on their conversations and unfolding relationship. And at the same time, I could not stop reading. It is intensely powerful, emotional, and challenging. I will read this book each time our leaders explain why it is necessary to use military force against this rogue nation or that thug, and I will read this book again for its sensitivity and humanity. If this book does not move you to tears, and inspire you to action, nothing will.”

**Alma Hromic** was born in Novi Sad, Yugoslavia. However she has lived outside her native country for much of her life: Zambia, Swaziland, South Africa, the UK, and New Zealand. Trained as a microbiologist, she spent some years running a scientific journal, and later worked as an editor for an international educational publisher. Her own publishing record includes *The Dolphin's Daughter and Other Stories*, her autobiography *Houses in Africa*, and numerous pieces of short fiction and nonfiction.

**R.A. Deckert** spent nearly two decades as an editor with newspapers in Florida and is currently a freelance writer.

**Letters from the Fire** by *Alma A. Hromic and R.A. Deckert*  
*Harper Collins Publishers (New Zealand) Limited, 1999.*

Available in the U.S. by mail through [www.lutzbooks.com](http://www.lutzbooks.com). \$11.95 plus shipping.

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## **At Last a Little Good News**

### **By Donella Meadows**

In the spirit of celebrating every success, but only to the extent the success deserves, I would like to celebrate something that is kind of hard to describe. The rate at which things are getting worse is slowing down. We're not going downhill as fast as we once were. The fever is high, but rising more slowly. We're still heading for the iceberg, but our speed is declining.

The most striking example of this positive-negative phenomenon is world population growth. We humans have more than doubled our numbers since 1950 and will add 77 million more of ourselves this year. The equivalent of France plus Belgium plus Switzerland. The equivalent of the Philippines plus Laos. The equivalent of five Mexico Cities. This one year. China will grow by 12 million people; India by almost 20 million; Africa by 19 million. The United States will add 1.4 million through natural increase and as many as 3 million through legal and illegal immigration.

Lovable, full of potential as each human may be, no one I know thinks that adding more of us to this crowded planet helps us solve our problems. Many think that population growth makes all

problems, from poverty to pollution, impossible to solve.

So here's what's worth celebrating. In the mid-1980s we were growing not by 77 million but by 87 million a year. In the mid-1970s the average woman bore 3.9 children; now the average is 2.8. The richest populations average only 1.9 children per family, below replacement level. Most industrialized populations have stopped growing or are slowly shrinking.

No one really knows why birth rates are going down, though family planners, economic developers, educators, and feminists are all happy to take credit. Whatever the cause, it's a trend worth celebrating. Though the population is still growing.

Here's another slowdown in a bad trend. For the past two years the amount of carbon dioxide we have spewed into the atmosphere from fossil-fuel burning has gone down. It has been a tiny drop, less than 2 percent. To stabilize the climate we need to cut emissions by 60 to 80 percent. The carbon dioxide content of the atmosphere is still rising. The Earth is still heating up. But at a slower rate.

The causes of the carbon reduction are multiple. The collapse of the Soviet Union is a major one. As its sloppy coal-burning industries shut down or were refurbished, East Europe's carbon emissions dropped by 30 percent. West Europe's emissions, because of carbon taxes and efficiency technologies, have dropped 0.7 percent. The United States is going in the wrong direction; its emissions have risen more than 10 percent since 1990. China's went up over the same period by 28 percent, India's by 55 percent.

But China's carbon emissions are not growing anywhere near as fast as its economy. That's because it is steadily replacing dirty coal with natural gas. Its greenhouse-gas emissions and local air pollution are getting worse, but not as rapidly as we might expect. Semi-good news.

Throughout the 20th century, human water use rose twice as fast as the population. The water curve is not rising as quickly as it was, however; in some places, it is even turning down. U.S. water withdrawals peaked around 1980 and have since fallen by about 10 percent. Our industrial water use went down by 40 percent, partly because of the export of heavy industries to other parts of the world, but also because of water regulations that made efficient use and recycling economically attractive, legally mandated, or both. Irrigation went down partly because of increased efficiency, partly because expanding cities bought water away from farmers (and therefore took land out of food production), and partly because wells went dry. Per capita water use dropped wherever higher water prices cut waste.

Water tables are dropping more slowly than they used to be. That's some sort of progress.

World fertilizer use has stopped going up, though it is still high enough to cause plenty of air and water pollution. The Soviet collapse helped stop the growth curve, as did European water quality mandates and the rise of organic agriculture. There's still more fertilizer leaching into wells and lakes than is good for ecosystems or people. But in many places there's less fertilizer pollution than there used to be, with little or no decrease in crop yields.

The 431 nuclear power plants now operating in the world will probably be an historic peak.

From now on, at least as many old reactors are due to be decommissioned as new ones are due to come into service. We still have an accumulation of nuclear wastes that we have no idea how to handle. It will continue to grow as long as any reactors are operating, and it will remind hundreds of future generations of our 50-year burst of irresponsible enthusiasm for this technology. But radioactive wastes will be piling up more slowly.

It's hard to feel celebratory when the rain is slowing but the floodwaters are still rising; or we're losing altitude but we're no longer in free fall; or our diet is not taking off extra pounds, but is slowing the rate at which we put on more. Things are still getting worse. But we have turned a corner. It does begin to be possible to believe that we actually could start making things better.

That's worth a celebration.

*Donella H. Meadows, a systems analyst, author, director of the Sustainability Institute, and adjunct professor of environmental studies at Dartmouth College, writes a syndicated article each week to "present a global view, a connected view, a long-term view, an environmental and compassionate view." Meadows can be reached at Sustainability Institute, Box 174, Hartland Four Corners, VT 05049.*

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## **Blips on the Timeline**

*The term "blip" is often used to describe a point of light on a radar screen. Gathered with the assistance of Research Director Jackie Mathes, here are some recent blips which indicate positive changes toward a global community.*

### **Growing Responsible Citizens**

Tufts University's new College of Citizenship and Public Service has scholarships, faculty, and a venture fund for community projects. By infusing every aspect of university life with a public service component, their aim is to encourage people to be responsible citizens who make a lifelong commitment to civic involvement. Tufts is one of hundreds of universities across the nation that include public service as a core tenet of their curriculum. Many have formed partnerships with their surrounding communities to work on issues such as affordable housing and environmental cleanup.

### **Pesticides Out**

No pesticides will be used on any property owned or managed by the city of Arcata, California, according to an ordinance passed unanimously by the city council. Arcata has already experimented with nontoxic methods. The city's semipro baseball field is managed completely without herbicides or pesticides. On city streets, a special sweeper sucks dirt out of pavement cracks to discourage weed growth. According to Arcata's park superintendent, from a management point of view it is actually easier not to use pesticides: "The amount of training and paperwork required for pesticide use is time consuming. Maintenance practices such as timely mowing, irrigation, and aeration for grass can be just as effective."

## **Green Headquarters**

The new headquarters for the Chesapeake Bay Foundation will be one of the greenest buildings in the U.S. Built on the shore of the Chesapeake Bay, it features reclaimed wood and metal, geothermal heat pumps, hi-tech sensors that control temperature systems, waterless composting toilets, solar panels, and natural ventilation. It uses only one-third the energy and one-tenth the water of a conventional office building. All of the runoff on the roof is collected and recycled, while on the grounds, native grasses are being planted and oyster reefs are being restored.

## **Global Ethics**

The United Nations has begun a campaign to instill ethical values in the global marketplace. Kofi Annan, the Secretary-General, contends that globalization can help all people if the new global marketplace acts like a global society. The UN has just completed a nine-point Global Compact, drawn from the UN Declaration of Human Rights, the 1992 Earth Summit, and the 1995 Social Summit. The goal is to encourage cooperation to lift the standards for workers, society, and the environment by showing governments of the world that workers can be treated better, polluted areas cleaned up, and human rights respected. Forty four corporations have signed on so far.

## **Suggestions Invited**

We are always on the lookout for interesting subjects for *Blips on the Timeline*. Readers are invited to send articles or clippings indicating positive change to Jackie Mathes at the Foundation. If we use your suggestion, we'll automatically extend your subscription for a year.

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## **Business as if the Earth Matters**

### **By Joe Kresse**

*Joe Kresse has a degree in economics and an MBA from Stanford. In 1988, he took early retirement from his career as a partner with the Arthur Andersen accounting firm to volunteer full time at the Foundation for Global Community. A former trustee of the Foundation, Kresse heads its Economics Team, which is working to expand the criteria by which businesses are judged to include how they affect people and the planet in addition to the traditional measure of profits.*

*The following is from an address Kresse has given on a number of occasions in different areas of the country.*

Imagine that you've come from the center of the Galaxy to look at planet Earth. You haven't been here for a thousand years so you're going to go back and report on its condition. You'd see some positive things such as the communications revolution that enables humans to talk across the planet in ways they never could before, and lots of other new technologies.

But what would be most obvious would be the huge negative impact on the planet humans have had: loss of biodiversity, loss of topsoil, loss of rain forest, less clean air and water, global warming, acid rain, the ozone hole, chemicals showing up in everything.

Not a very reassuring report.

As a business person, I have to admit that we've been a big part of the problem. Economics—business—is the major driver, planetwide. Business is more powerful than governments. Some transnational corporations are bigger than some national governments. Businesses can go wherever they want to go. If they don't like a government in one country, they can move to one somewhere else.

Of the three most powerful institutions in the world—business, the church, and the nation-state—only business does not have as a part of its charter the well-being of the whole. At least nominally, a church is concerned with the values that would enable a person to live a fulfilled life, and a national government tries to assure that its citizens have their basic needs met. But the primary concern of business is a single criterion: return on investment (or increasing shareholder value, as it is currently described).

If things are to improve for future generations, business must change. Fortunately, business provides a tremendous outlet for creativity. Creativity is one of our unique contributions as humans—most other animals are pretty much genetically programmed. The bird goes south in the winter and north in the summer, no variation. But we have created so much of what is around us out of our imagination. Business rewards this creativity incredibly well, so it's very attractive to us and has a tremendous possibility for creating something positive as well as something negative.

## **The Big Shift**

Now, we are in a big shift which creates the possibility of something new. The shift is cultural, technological, and includes a change of consciousness. Culturally, old institutions are losing their effectiveness and the power to hold us. Churches have lost a great deal of their ability to mold beliefs and to educate and to set values. The educational system has all sorts of problems; even universities are no longer beacons of what is possible, but have become purveyors of the status quo. The media are the same way. They used to stand outside of society and call out what was wrong; now they are owned by large corporations with widely dispersed interests, and the news we get is far too often what's in the best interest of money.

So we don't have a lot of faith in our old institutions, and we no longer believe in much of what we see and hear. At the same time, because of global communications, we're aware of the whole world around us, including the opportunity to realize that the way our country does things is not necessarily the only way to do them.

Technology, which is one of the things the economic system produces, is another reason for this shift. Biotechnology is addressing the very genetic makeup of life. We're right down to asking, "Can we decide exactly what our kids are going to be?" Designer babies. Computer gurus say we'll have computers that are a million times faster and more powerful than the ones today.

Software is moving toward voice recognition. Fiber optics now allow huge amounts of data to be moved in nanoseconds so everybody is going to know everything immediately. There will be information overload, but you'll also be able to get whatever you need.

But perhaps the biggest shift is the story being revealed by science—one of an emergent, unfolding, dynamic universe. It is not some static background that we were plunked into, but a continuous, unfolding, 13 or 14 billion-year-old energy event that has produced everything we see, including us. We're all intimately a part of it, and interconnected with it, and it continues to unfold and move in an emergent kind of way. This new understanding can change our consciousness of who we are and why we're here, as we experience the awe and wonder of the process which starts with elementary particles, proceeds to hydrogen, to helium, to stars, to supernovas that produce the heavy elements that produce another generation of stars and planets that produces a planet like Earth, which produces life which produces us.

Nothing one could observe at the beginning would predict that there would be sentient beings 14 billion years later who could look back and understand this whole sweep of cosmic history. And we are the first generation of humans to have this understanding. If what Jonas Salk said is true—that consciousness of evolution leads to the evolution of consciousness—then the more conscious we are of how we got here, the more our consciousness will develop.

## **Shaping the Shift**

How are we going to shape this wave of change? One thing I'm convinced of is that it's more valuable to focus on the future than to try to fix the present. With the rate of change today, fixing the present is too late—it's already past and too well entrenched. For example, we could be worrying about fossil fuels and our use of oil. It's something we don't want to completely turn our back on, but the leaders in the oil companies and in the car companies already know that that game is over—oil is running out and future cars will run on hydrogen. Shell, British Petroleum, Ford, the Japanese automobile manufacturers—they're not fighting the petroleum foot-dragging game anymore. They gave that up probably two or three years ago, and now are in a race to see who is the greenest and who is going to develop the alternative to oil.

I believe the basis for shaping the future requires a fundamental change at the level of worldview, of principles, of values. All of those come out of the stories we tell ourselves about who are we, why we are here, and what it is we are to do as a species and as individuals. Stories are at the core of everything we believe and think, and every culture has its stories. The cultural historian Thomas Berry would say that in the West we're between stories. The old stories no longer inform our behavior in this world and we do not yet have a new story of how we are to function in this new environment. But given our power to affect the future, we'd better get a new and adequate story fast.

The worldview, the principles that are adequate for our time, actually come out of the rapidly increasing knowledge of how the Universe/Earth system works.

1. Most basic is that everything is connected. What we do affects all. For most of our history, we've been able to ignore this. Early on, there weren't many of us and we didn't have much power, so if we fouled up in one area, we could always move on to the next one. Now our power

is so great that we have to realize that everything we do has an effect everywhere else.

2. Earth has supported countless forms of life for almost four billion years, starting with single cells—bacteria—and ending up with the profusion of life we see today, always increasing in complexity and consciousness. That says to me that life favors consciousness, it favors complexity, it provides everything we need.

3. We're born of the Earth, we're part of it, we're dependent upon it. Since it nurtures us, it is only natural that we call it mother.

4. Diversity—culturally, politically, biologically—strengthens the system. Diverse ecosystems are strong. Mono-culture doesn't work.

5. Life is a complex, adaptive, self-organizing system. Such a system depends on autonomous agents that make their own decisions, yet act out of the same set of instructions. In response to evolutionary pressures, autonomous agents are able to reorganize at a higher level of complexity or consciousness. For example, when birds are flying in a flock, it isn't that one head bird says "everybody up—you go right or left." Every bird has a basic set of instructions: keep a minimum distance from the bird next to you, match speeds with the birds around you, and tend towards the center of mass of the birds near you. Since they all follow these instructions, you get the elegant, flocking behavior that enables them to avoid predators and survive.

As human beings, we have the same issue. Here we are creating this incredible technology and power which has created evolutionary pressure. We're degrading our environment. We're crowding ourselves in. We have all these weapons. How are we going to reorganize ourselves at a higher level of consciousness and complexity? It requires that we have a common set of instructions, and those instructions come from the natural world. They are derived from the five principles listed above. We don't have to make them up, and no one has the received wisdom over anybody else. We don't need intermediaries anymore. We don't have to depend on priests or gurus or anyone else. Just observe how the natural system works. What is it telling us we need to do? What is our function as human beings?

Our basic instructions ought to provide an economic system that enhances life, not one that degrades it. We should recognize that all life—everything—is sacred, not just human beings. We can no longer act as if the Earth is here for us to use, that we have dominion over it, and we can do with it whatever we want.

## **A New Economic Paradigm**

Business people and economists still love Adam Smith, a thinker two centuries ago, whose tagline was the invisible hand guiding the market. Today people assume that means, "Let there be a free market and the invisible hand will lead to the best outcome." That's great, except that Adam Smith lived in a time of local ownership where owners were subject directly to the results of their actions. It was a we-are-one, everything-is-connected principle where you couldn't foul your own nest and get away with it. If the factory put out smoke, people came and knocked on the factory owner's door. Or the owner's wife complained to him that her laundry was sooty. Or the river became dirty and no one could drink the water, including the owner of the factory. In

those days, they saw the company, the business, as part of the whole.

Today, with absentee owners, the idea of the invisible hand doesn't work, because the owners don't suffer the direct consequences of what their company does. And their consciousness isn't high enough to see that when you turn Guatemala or Honduras into a monoculture of bananas, it's going to cause a problem—maybe not immediately, but a problem for their children or grandchildren.

Another theory—that of economist David Ricardo—stressed comparative advantage. It basically said that if a country can do something twice as well as anybody else, that's what the country ought to focus on. But Ricardo also assumed local ownership and did not consider there would be free flows of capital. He assumed that the people in Honduras would be autonomous, decide what to do, and finance and build their own plants. He didn't consider that people in the United States could buy Honduras and turn the country into a plantation with the result that the Hondurans could no longer grow their own food and would end up at the mercy of a world market.

With globalization, that is pretty much the way the world now works in third world countries. Modern free markets ignore the bioregional basis of life—what would be best to be grown in that place for the long-term well-being of that place, of that soil, of the people in that place. As a result, locals are displaced, people are thrown into the cities in slums, or forced to sharecrop on somebody else's farm instead of owning their own land.

So we need a new economic paradigm, one that has a broader set of criteria than return on investment or increasing share-holder value. Fortunately there are some good signs. One, now spreading in Europe, is known variously as the triple bottom line, the three "P's," or the three "E's." The idea says that corporate success should be measured by the way it treats the three P's—people, the planet and profits, or the three E's—equity, ecology, and economy.

Shell is one company using this approach. In a recent report titled *How do we stand? People, the planet, and profits*, the Shell Report 2000, the company president writes: "My colleagues and I are totally committed to a business strategy that generates profits while contributing to the well-being of the planet and its people. We see no alternative." By publishing the report, Shell is saying, "We'll be accountable." Obviously, we have to hold their feet to the fire—it's not going to happen automatically. But the public has the power to hold them to it.

Employees also have power, more than at any time in history. At the most recent Parliament of World Religions, one consultant talked about the evolution of ethics and meaning in companies today. Her message: Within a dozen years, if a business does not recognize the need for work to provide a sense of meaning for employees, does not function with integrity, openness, and ecological sensitivity, does not foster trust and fun, does not value the intuitive, it will be unable to attract top-quality employees, because they will have alternative opportunities which do provide these qualities. And I would add they won't have customers to buy their products or investors who want to buy their shares.

Another factor business people have to face is the grave consequence in being seen as an environmental or social destroyer. Witness Nike, the Gap, and other companies that have been

blindsided by something they never thought would be a problem—using cheap labor in a foreign country—but turned out to be one. That’s one side—the stick. The other side is the carrot. The book *Natural Capitalism*, for example, is filled with examples of increases in efficiency, the reduction of pollution, and reuse of materials by companies in all kinds of industries.

There are certainly some people in corporations who love to be the biggest shark in the pool and think it all ought to be a big blood bath, and if they can be the one to kill everybody off, great. But there are other people who are saying, “I wish I didn’t have to fire people just because it looks like it’s going to be a bad quarter, or run the risk of my board throwing me out, or make a bad environmental decision right now because it’s going to hurt earnings for the next two quarters.” That’s the dilemma CEOs are faced with when the board and the stock-holders have one criterion: How’s your return on investment versus your competitors?

## **Helping Shift the Economic Paradigm**

There are some new movements that support this paradigm shift. One is The Natural Step, which was started in Sweden by Karl-Henrik Robèrt. He consulted with a group of scientists and came up with four basic system conditions that he said we need to hew to, and business ought to operate by. He said every time you make a decision, ask “Am I going in the right direction? Or am I violating one of those conditions?”

What are some specific changes that should be made? Don’t allow corporations to make political contributions. Place limits on corporate charters and provide for revocation for behavior detrimental to life. Limit ownership of major media outlets to one per corporation. Now three corporations own most of the major media outlets in this country—not good for democracy, since we’re not getting a diverse point of view any more. That’s one of beauties of the Internet. It has broadened our ability to get news from sources other than the ones which just tell you the same story.

We ought to shift from taxes on income to taxes on carbon, the use of virgin materials, and the production of waste and pollution. It’s a no-brainer. Why would you tax people for working? You want people to work. If you got rid of income and payroll taxes, you could employ more people because the cost per employee would be lower for every dollar of take-home pay.

While we must look at the changes needed in business, we also need to pay attention to our personal consumption, how we live. A great little book called *The Consumer’s Guide to Effective Environmental Choices*, put out by the Union of Concerned Scientists, says you can drive yourself crazy trying to figure out whether to use paper or plastic, cloth or disposable diapers. They said don’t sweat the small stuff. There are seven things you really need to pay attention to.

First, the car or truck you drive. Is it a gas guzzler or does it use little or no gas at all? Second is meat and poultry. Together, they cause 20 percent of common water pollution and use 860 million acres for livestock raising and animal feeds. Third is conventional cultivation of fruits, vegetables, and grains. Eating organic foods means less chemical fertilizers and pesticides to run off the ground and into the water system.

Fourth is your home heating, hot water, and air conditioning. Here conservation is the key. Fifth

is household appliances and lighting. Most refrigerators are big energy hogs. Use compact fluorescent bulbs. Home construction is sixth: How big a house? Is there anything recycled in your house or is everything new? Household water and sewage are number seven.

Another thing to do is use the book *Your Money or Your Life*. It has a nine-step process for reducing the amount you consume to that which gives you true satisfaction. It gives you a tool to ask: “How much time did I spend to actually earn this money, including commuting time, the clothes I had to buy, the vacation time to unwind, the taxes I paid?” You find out your actual hourly pay is about a quarter of the nominal number. And then you look at what you’re buying. Just by doing that, you’ll quit buying a lot of stuff. It’s a tool for living more simply and more on purpose. There is no prescription for what you ought to do; you just discover what you want to do with your life.

We’re all, at various times, buyers of products, investors, and employees. So we can vote all three ways. One eighth of all the money now in the financial markets has some sort of social screen on it. It’s called socially responsible investing and it’s growing twice as fast as the nonscreened money. As more and more dollars go there, other companies don’t have access to those dollars. A lot of the screens now are just “no guns, no liquor, no tobacco.” Those screens are going to get better and tighter because people will demand it.

I believe the tide is actually turning and that we will transform our culture into one that supports the long-term flourishing of life. There is evidence everywhere that humans desire a better world and that they’re willing to work for it. The question is whether it will happen quickly enough to avoid irreparable damage.

One way I guarantee the shift will never happen is if we say, “I’m fighting the good fight, but it’s a rear-guard action and there are overwhelming forces against me.” On the other hand, if enough of us take a stand for that transformation, saying, “It will occur, it must occur, I’m committed to it occurring,” I believe the universe will support us in that turning. That’s the way the world works. If there is enough human intention, things will change.

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