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LOOKING BACK FROM THE YEAR 2000

Lecture given by Russell W. Peterson, August 8, 1977
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None of us knows for sure what the future will be like. But we can be sure that it will be vastly different from the present. The many dedicated, persistent people working to alter the course of events will see to that even though for each of them there are many others working to maintain the status quo. It has been said that there is only one thing more certain than change. That is resistance to change.

Many of those, for example, who have reached the top naturally like the system that has so rewarded them and work to sustain it even though it may not be best for the general welfare.

It is my objective tonight not to predict the future but to stimulate our thinking in a way which, hopefully, will make us better architects of change -- of change toward the general welfare. After all, predicting the future is much less rewarding than helping to make it happen.

Twenty-three years is a short time in mankind's 3 1/2 million years on earth. It is only one-third of the average three score and ten currently allotted to us individual human beings. But oh, how important to each of us -- whether it is the first third of life preparing one's body and mind for the years ahead, the middle third raising a family and launching a career or the last third in optimizing the options for self-fulfillment.

For most of the history of humanity change occurred very slowly. One could be quite confident of what life would be like 23 years ahead. But the rapidly escalating rate of change over the last two centuries makes a 23-year passage today both an exciting and threatening adventure.

Let's take the 23-year interval from 1946-1969. Who would have predicted that our vanquished foes, Germany and Japan, would become two of our best friends? Or that the vast colonial empires would break up into an abundance of proud countries that now dominate the United Nations? Or that a man would walk on the moon and be observed doing so by over 400 million people? Or that two individuals would have the power and wherewithal to trigger off an afternoon holocaust that would wipe out most life on earth? Or that in spite of a fantastic worldwide growth as measured by GNP there would be at least a hundred million more humans living in abject poverty?

Who will be friends and who will be enemies 23 years from now? How will the world community respond to the growing demands from the poor

nations for more equity in sharing the world's resources? Where will woman or man walk by the year 2000? Will there be more or fewer humans barely surviving after adding to the world's population over those 23 years, more people than the two billion total on earth when I was 23 years old? Or will the nuclear war button be pushed and the few survivors in the darkness of their caves be engrossed with more urgent problems?

While I was preparing for this lecture, Dan Boorstin, the custodian of the world's largest library, called my attention to a book written in 1887 by Edward Bellamy, "Looking Backward - 2000-1887." What a piker am I to venture forth to look back only 23 years.

Bellamy, a Bostonian, would have been a good addition to the seminar we held here at Aspen last month, a seminar on how we might maximize the quality of life by the Year 2000. His spirit was there. For we focussed on the same thing he did -- how to build a society that provides for the basic needs of everyone, and especially for a meaningful job for everyone. He portrayed a society in the Year 2000 where through emphasizing human development and downplaying material acquisition the vice and folly that plagued 1887 Boston were markedly reduced, thereby facilitating the direction of resources toward human development.

A growing number of Futurists claim we are currently going through a major social transformation, a paradigm change of a magnitude that has happened only four or five times in history. The foreseen change is toward a society where one's self interest is related to living in harmony with other humans, with nature and with future generations and away from ever increasing material consumption and waste. If they are right, and there is much to support their hypothesis, then by the Year 2000 some of Bellamy's dream may not be too far off.

Let me hasten to add that Bellamy would have had a rough time at our seminar. By the Year 2000 he favored turning nearly everything over to the government, getting rid of money and retail stores and rewarding everyone the same. He would be an extreme socialist even today.

So much for Bellamy!

How about coming with me to the Year 2000?

I am 83 years old.

How old are you?

Lillian and I live in Rehoboth Beach, Delaware. We can see the ocean out one window and Silver Lake out another. For anyone who loves nature like we do it is hard to beat. Developers long ago stopped trying to industrialize this relatively unspoiled oasis. Thousands of people from the surrounding metropolitan areas enjoy visiting here for fishing,

nature study, swimming, boating, hiking or just lying in the sun.

We still get to Aspen Institute in Colorado every summer. The intellectual and physical stimulation, the companionship, the music, the beautiful surroundings, the clean air, are great. By any yardstick I can imagine, one would have to place our quality of life near the top of the scale.

We just had a wonderful family reunion. All of our grandchildren were there. I hope I don't bore you, but let me tell you what some of them are doing. Lillian and I are proud of them.

I will start out with my granddaughter Erin. She is manager of a job bank located on Fifth Avenue in New York City. Erin's job, like that of thousands of other job bank managers around the country, is to help citizens find a job which best suits their qualifications and interests. There are no unemployed. That problem was finally taken care of in 1985 when President Mary Jones came into office. The serious depression that year provided a political climate that gave Congress the backbone to follow her courageous and farsighted leadership in passing the Job Security Act. Her first year in office reminded me of Franklin Delano Roosevelt's first year. In one fell swoop she wiped out the single most serious injustice in our country -- to be denied a job because the system did not produce enough jobs to go around.

The Job Security Act provides a job for everyone who wants one and cannot get one in the private sector. Such jobs are paid at 80% of the prevailing wage for the type of job in question. The program is financed by a job security fee paid on every job in the country -- half by the employer and half by the employee. Currently each pays 3.5% of the wage or salary. The fee fluctuates up and down depending upon the private sector's success in providing jobs. When a recession comes and jobs are lost in the private sector, jobs are increased in the public sector and the fee is increased. Thus everyone participates in the penalty of the recession rather than just those who lost their jobs as heretofore.

This act also wiped out the welfare dole and unemployment compensation. When a person loses a job, he or she is immediately offered a public job but no welfare dole. This has eliminated the debilitating impact on human dignity of being forced to accept charity and has furthered the psychological health of the breadwinner's family. At the same time, giving a person a job instead of a dole removed the unfairness of some people who are working getting paid less than those on welfare. It is amazing how the subject of welfare reform has disappeared from our discussions. No one appears to object to the continuing Social Security payment to those whose disabilities prevent them from working. The Job Security Act also gave the movement to improve the status of women a big boost. No longer could women be kept out of the job market because of

the excuse that no jobs were available.

With everyone who wants to work working the total productivity of the nation has increased. The Job Security Act is now generally credited with the major advances in building housing for low and middle income people, the improved maintenance of our national forests, parks and refuges, the increased participation in the arts, the rebuilding of our railways, the building of bicycle paths, the construction of extensive recreational facilities and the furthering of solar energy development.

Erin tells me that living in New York City is a great pleasure. She especially enjoys the exciting activities on the streets -- the great sense of community among the people of such varied cultural backgrounds.

It is hard to believe the great change that has occurred. The streets of all our cities are now much safer. The crime rate has plummeted ever since the Job Security Act was passed. Now that young people whenever they leave the formal educational system are assured of a means of making their own livelihood, there is little incentive for them to break the law to try to fulfill their most basic needs.

How we went so many years training young people for a career and then when they were ready denying them the opportunity of a career is hard to understand. This is especially disturbing to me because I was Chairman of a national commission on criminal justice standards and goals way back in the early 70's that concluded that the single most important thing we could do to reduce the crime rate was to provide jobs for young people. We tried to sell this idea with no success. But thanks to President Mary Jones, she had the courage and vision to get it done.

Another bonus from this program is a marked reduction in the size of our criminal justice system. This system never did contribute much to preventing crime. Its function was to process those who committed crime. When the society failed to face up to the causes of crime, the number of offenders continued to grow, putting an intolerable workload on an underfinanced criminal justice system which tried to solve its problem by plea bargaining, by revolving door sentencing and by calling on a deaf community to give the offender the basic opportunity to take care of his needs within the law.

Now we have torn down our worst prisons and youth correctional centers, abolished plea bargaining, reduced our police and parole forces and given the Courts a chance to practice law with justice.

Nate is my grandson who works in the White House on the staff of the Council of Holistic Advisers. This council was created back in 1985 after it became increasingly clear that the major problems affecting

our people could be coped with only from a holistic perspective -- from a comprehensive, worldwide, long range view that weighed the interaction of the many forces at work and the choices available for action. The old Council of Economic Advisers whose narrow focus previously dominated the advice provided the President, the Council on Science and Technology and the Council on Environmental Quality were all absorbed into the new Council. It is the responsibility of the Council of Holistic Advisers to see that the President spends some time on the important. I remember well the statement made by former Secretary of State, Henry Kissinger, after leaving office, that the main problem in Government was that the urgent stole the time from the important. So it has been decided to have two teams in the White House, one to deal with the urgent and one with the important.

Nate's staff assignment is to maintain the records on the gross national development, the GND. Ever since this new concept for measuring progress in human development was adopted, it has had a remarkable impact on decision making. It is hard to understand why for so many years we talked about the importance of human development, about maximizing the quality of life, yet never developed a means of measuring it. We in fact were flying blind.

For some reason we became enamored with the concept of gross national product, the GNP, and made a religion out of it. Finally, in the 1970's, it became quite clear that GNP was both inaccurate and inadequate for measuring and motivating the movement of human beings toward a higher quality of life.

The GNP measures the total activities of a nation that involve a financial transfer. Thus it is useful to the business and financial communities. But for measuring human progress it is of limited value. It includes activities whether they add to or subtract from the quality of life. It doesn't measure at all many activities that importantly affect the quality of life such as house work, parental guidance, subsistence living or volunteer work. It gives no measure of the hungry, the unemployed, the sick, the ill-housed, the illiterate, the frightened, the oppressed, the imprisoned, the unhappily employed or those who have reached the highest level of fulfillment. Furthermore, it does not measure the waste of resources or the befoulment of our life support systems.

On the other hand, the GND measures directly the level of human development resulting from our total activities and environment. A nation's GND per capita is a direct measure of its progress toward a higher quality of life. It disturbed me for years that so many economists and business leaders fought the use of GND. They objected to the fact that GND was determined in part by subjective measurements. Since I had spent 26 years in the hardnosed industrial world where we launched

highly successful major enterprises based primarily on subjective evaluation, I knew they were wrong.

Nate was quite excited about a recent report which he prepared that showed that the United States' rapid rise from 15th on the GND per capita scale to 10th stemmed almost solely from the passage of the Job Security Act and that Brazil's phenomenal increase in GNP had been accompanied by a reduction in GND per capita.

My granddaughter Karin works for the U.S. Immigration Service. She is quite upset about the great hostility between Mexico and the United States and worried about the possibility of open conflict. The slaughter of 37 Mexicans trying to cross the Rio Grande last year is still being condemned in the U.N. The border between our countries is the focal point of the heated North-South conflict, the battle between the have and the have-not nations.

Mexico has experienced substantial industrial growth but the benefits of this have gone primarily to the elite while their skyrocketing population, which has doubled in the last 25 years to 120 million has markedly increased the hopelessly poor by millions.

The U.S. is upset by the number of Mexicans illegally in the U.S. It has now reached 20 million and is the sole cause of continued population growth in the U.S. At the same time, the millions of U.S. citizens of Mexican birth or ancestry are clamoring for admission of relatives and friends to rescue them from abject poverty. We have over the years added guards upon guards and electronic device upon electronic device along the border until we now get accused of having built a modern Berlin Wall.

Karin bemoans our fate and wishes we could still cry out to the world,

"Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your shore,
Send these, the homeless, tempest-tossed, to me:
I lift my lamp beside the golden door."

Thank God, my poverty stricken grandparents and their seven children, including my father, knocked on the golden door before it was closed.

One good thing has come from this growing confrontation with Mexico. The U.S. people have now overwhelmingly accepted the fact that their self interests depend upon the nations of the world giving those who have not met their basic human needs first call upon the resources of the world. It is of interest that the people of southern U.S., formerly the least supportive of foreign aid, are now the champions of such assistance. Once again the U.S. leads the world in the share of its resources going to

foreign aid. A major factor in this turnabout was the establishment by the United Nations as a result of the debate on the new international economic order of a highly efficient commission on basic human needs and collective self-reliance. This commission has established international standards for meeting basic human needs and has been able to assure donor nations that their aid will reach the poor and not just fatten the purses of the elite.

Three other factors give more hope to the developing world. The commodity and trade agreements worked out in the 1980's have helped to stabilize their economies and to give them a fairer deal in exchange of resources. The world-wide development of solar energy lends itself well to the energy needs of the poor countries, nearly all of whom have an abundance of such energy. And most important of all, according to my granddaughter Erica, who works for the Population Crisis Committee, the revolution in family planning that got in high gear after the World Population Conference in Bucharest in 1974 has had phenomenal results in reducing birth rates. The great successes in Asia and in a few countries in Latin America convinced all countries, with only two exceptions, to adopt high priority voluntary nationwide family planning efforts. As a result, the population this year is only six billion in sharp contrast to the eight billion predicted 30 years ago. Nevertheless, the growth in absolute numbers per year is the highest ever, and even the greatest optimists do not see the population leveling off before it reaches nine billion.

We still have people around promoting space colonization as a way of solving our population problem, but I think what Arthur C. Clarke wrote over 40 years ago in his "Profiles of the Future" still is sound. Here is what he wrote:

"Space has room for many things, but not for 'your tired, your poor, your huddled masses.' Any statue of liberty on Martian soil will have inscribed upon its base, 'Give me your nuclear physicists, your chemical engineers, your biologists and mathematicians.' The immigrants of the 21st century will have much more in common with those of the 17th century than the 19th. For the Mayflower, it is worth remembering, was loaded to the scuppers with eggheads.

"The idea that planets can solve the problem of overpopulation is a complete fallacy."

So much for Arthur Clarke.

Let me briefly digress from my report on my grandchildren to tell you what my daughter, Elin, is doing. She is now only 44 years old, but is already a Vice President of General Environment. Of the nine people in top management in this huge company, five are women. General Environment is the successor to General Motors. They finally realized, under great pressure from their stockholders, the tremendous market for clean

air, clean water, efficient long-lasting vehicles and appliances, and for solar energy and decided to concentrate on products and services that fulfilled the need for humans to live in harmony with nature. They are still in the auto business with the hottest car in the market, the Enviro, a 2000 pound car that gets 60 miles per gallon of alcohol and contributes absolutely no air pollution. They now dominate the Council of the Environmental Industry which was set up back in 1975 to help convince the people of the U.S. that the environmental movement was not a threat to our economic health but a source of jobs and investment opportunities, as well as a necessity for human health. It is amazing how few people question these facts today.

It is difficult to discuss the living members of my family without recalling the tragedy that befell us in 1989 when our adopted son, John, was killed as a result of the nuclear bomb catastrophe in Atlanta. We are not sure what happened to him. He was attending Georgia Tech and presumably was vaporized along with the other 185,000 Atlantans who disappeared that afternoon. That was a better way to go than that experienced by the other 108,000 who died over the following days and weeks from burns and radiation. Even today many people as far away as Washington, D.C., are suffering radiation induced illnesses from the fallout from the nuclear cloud that moved up the East Coast.

Probably nothing has ever shaken our nation more unless it was the Civil War.

It could have been worse, for the military initially indicated it was the work of the Soviets. Fortunately that alarm was promptly removed by a call from the Soviet Premier to the President denying any Soviet role and offering his country's help. The bomb was set off by a group called "Food for the Hungry." It is believed they stole the plutonium they used from either a French breeder reactor site, or that it was part of the plutonium missing from the Savannah River - Rocky Flats plutonium weapons program. These locations, like many others around the world, had repeatedly shown losses of plutonium, but their managements had explained the losses away, telling the people they had nothing to worry about. It was rumored but never proved that some concerned former employees of the Government's plutonium weapons program had set up a secret facility in Atlanta to demonstrate that our security system would not prevent a determined group from making a bomb. Reportedly they were casualties of the Atlanta explosion.

Within two hours after the explosion documents were delivered to the President and the Congress demanding that within one week they vote to send, gratis, one-fourth of all U.S. production of grain to those countries in Latin American and Africa where over one-half million people have starved to death. This horrible famine was caused by the serious drought that had plagued those areas, and by the failure of the world community to establish a food reserve for such contingencies.

The world's recurrent famines are inexcusable. As Walter Orr Roberts

told us many years ago, the world can produce much more food, but getting the right quantities to the right place at the right time, especially in poor crop years, is an assignment our institutions are unlikely to face up to. He predicted back in 1977 that the most likely disaster over the next 23 years would be famine -- partly man made and partly natural. He warned us not to base our forecasts for food production on the record yields of the 1940-1970 period, the most favorable climatic period for food production since 1000 A.D. The wild swings in climate the last 23 years support his observation.

I forgot to mention that the demand by "Food for the Hungry" also claimed that the terrorists had planted a similar bomb in Washington, D.C., and threatened to explode it within one week unless their demands were met. What a terrifying week that was!

The Congress, after much tearing of hair and brave talk about calling the terrorists' bluff voted to provide \$10 billion of food grains and the President approved it one day before the deadline.

A note delivered to the White House described the bomb and where it was located.

It was the real thing, armed with 35 pounds of plutonium and ready to go.

The military disassembled it.

A sigh of relief was heard around the world. But within a few weeks the people started to react. Millions of people all over the world had always been frightened by nuclear energy and tens of thousands had demonstrated against it from time to time, especially France, Germany, the U.S., Britain, Sweden, Australia and Japan, even though the safety record of the large number of light water power reactors in operation was excellent. Now the people's preconditioned fear of nuclear energy boiled over into the streets. Millions more joined the cause. The plutonium based nuclear energy industry was dead.

Now another frightening thing occurred. Governments, including ours, started to crack down on dissidents and for awhile there was great concern about losing our hard-won freedoms. The FBI even questioned me about a speech I made 23 years ago at Aspen called "Looking Back."

Two years after the Atlanta tragedy a similar catastrophe occurred in Leningrad. A group of Hungarian Freedom Fighters striving to get the Soviet Union to dismantle the last empire on earth planted a bomb in Leningrad and demanded that all Soviet troops be withdrawn from Eastern Europe. No one is sure what happened, but reportedly the Soviet police stormed the building where the bomb was and it went off.

Now even the Soviets turned their backs on a plutonium energy economy. The only long range route left was solar energy. Fortunately,

much research and development on solar energy had been carried out over the previous 15 years, especially in Australia and Sweden. In undoubtedly the greatest cooperative global effort ever the world pooled its resources and ideas to rapidly expand its solar energy base.

The sun, a properly located nuclear reactor, has always been our largest source of energy by far. It provides the energy for photosynthesis which supplies our food, oxygen and wood and which triggers off a great profusion of biological processes, such as those now being used to supply methane gas for our stoves and refrigerators and alcohol to fuel our automobiles. It energizes the hydrologic cycle supplying us with drinking water, irrigation, hydroelectric power, and water for the myriad of industrial and municipal uses. It activates the wind that provides most of our air conditioning, blows pollutants away from our cities and drives the many thousands of windmills that now do so much work for us. It lights our whole community during most of the hours we are awake and it maintains a life supporting temperature year round for about half of us and part of the year for all of us. Even in the cooler seasons and regions the unaided sun does most of the heating. Without it the outdoor temperature would be at least 200° C. lower. As a result of the major revolution over the past 25 years in developing and marketing equipment for using solar energy to heat our water and our buildings, we are more indebted to the sun.

Even though solar energy does all this work for us, we use only a small part of what reaches the earth day after day. We would be using much more if we hadn't been diverted a couple of centuries ago with the discovery of stored-up solar energy, the fossil fuels. With this gold mine of useable energy at hand, we went on a binge squandering this capital as fast as we could, building with it a new and wasteful way of life. In so doing we committed a cardinal economic sin -- we spent our capital, our fossil fuel, without replenishing it from earnings. This is one of the main causes of the serious energy crisis we are in today.

Fortunately the U.S. Government, after U.S. domestic production of oil had fallen for eleven consecutive years, faced up to this problem in part in 1981 with the passage of the oil and gas depreciation fee. It placed a stiff \$10 per barrel fee on oil and an equivalent amount on gas with the depreciation fund to be used exclusively for capitalizing the development and subsidization of means of conserving energy and of converting more solar energy to useable energy. This step markedly dampened the demand curve for oil and gas, accelerated the use of coal and gave solar energy a tremendous boost.

Even then, most of the people refused to accept the fact that a serious energy crisis was coming. World production of oil continued to increase, almost doubling by 1995, and the discovery of new oil fields went on. But in 1995, about when predicted, the world production of oil peaked out. It has been downhill for the past five years and will continue to fall off. The same thing appears to have happened to gas production in 1998.

What a serious blow this was to meeting the world's need for energy -- even more critical than the demise of the plutonium energy industry after Atlanta. Some people say it will go down as one of the most critical milestones in history.

In the past when we needed more energy we counted on getting more gas and oil and as long as we could pay for it we got it. Between 1975 and 1995 the world added as much oil production as the total oil produced in 1975. Think about that! After more than 100 years of bringing in huge oil fields all over the world and building up to the 1975 level of production, the world in just 20 years added an equal amount to its production. At the peak year 1995 mankind had consumed one-half the oil it will ever pump out with the other half still in the ground.

It's quite a different thing to be on the downswing than on the upswing. About 15 years from now the world's oil production should fall below the 1975 level.

My granddaughter, Sara, is more optimistic than I am about the world coping successfully with its energy needs. She is a bacteriologist with Solaro, which is the world's largest solar energy company. She is excited about a discovery she made recently in which she isolated a new strain of bacteria that is six times as effective as any other in converting garbage, sewage and sea kelp to methane gas. Solaro got its big boost in the solar energy field some years ago when it pursued a discovery of a scientist at the Los Alamos Scientific Laboratory which gave a many fold increase in the conversion of sunlight to electricity. He had been working on the use of a laser beam to enrich Uranium 235 to bomb grade purity. He learned how to use the laser to excite molecules and to apply this technique to the economical removal of the impurities in silicon that had markedly reduced its effectiveness in the photovoltaic cell.

As disturbing as the energy problems are, they don't bother me as much as the continuing possibility of a nuclear holocaust.

My grandson Joshua works on the staff of the Joint Chiefs of Staff of the Defense Department but is assigned to the Arms Control and Disarmament Agency. He spends most of his time out of the country on disarmament negotiations. He just returned from a three months' assignment in Moscow. The U.S. negotiating team and the Defense Department, he claims, are convinced that over the last ten years the Soviets, under their younger leadership, have given up on their earlier theme of dominating the world, and are working constructively within the world community to further human development everywhere. They emphasize that their own self-interest requires it.

I well remember what Pakistani Ambassador Akhund, then the leader of the Third World at the U.N., told us at an Aspen Institute Seminar 23 years ago. "Until you affluent countries stop looking at foreign aid as an humanitarian effort and start recognizing human development in the poor nations as vital to your self interest, the world will make little effort in resolving this problem."

The change in the Soviet attitude and approach undoubtedly stems from the substantial increase in their standard of living and from the success of their people in obtaining changes in their constitution that have given them more say in the selection and dismissal of their leaders. A similar movement among their satellites in Eastern Europe undoubtedly catalyzed the action in the U.S.S.R.

The changed attitude of the Soviets and the strong demands by the U.S. electorate for reduced armaments are the principal reasons for the substantial progress being made under the United Nations' auspices in the mutual reduction of armaments. The latest figures show that the total world expenditures this year for the military is just about half in constant dollars of what it was 25 years ago.

I am still worried, however, about world security. There is too much hostility remaining between the U.S. and the U.S.S.R. and the hawks in both countries keep stirring it up. Each country still has enough nuclear weapons to wipe out most life on earth many times over. And terrorists continue to ply their trade and probably will, at least until we do much more to help the remaining millions of hopeless around the world. Maybe it's the memory of Atlanta and Leningrad and the great strains of the energy crisis that bother me. In any event I am convinced that my grandchildren and everyone else on Planet Earth have a big job ahead to keep from blowing up the place.

I haven't mentioned my other grandchildren. Kjellin is a violinist with the Alexandria, Virginia, symphony orchestra; Jessen is a sculptor at the University of Michigan and Erica is a librarian at the Congressional Library. They tell me that in the long run the only human activities worthwhile are the creation of beauty and the search for knowledge. All my grandchildren are excited about what they are doing and have good hopes for tomorrow.

Come to think of it, why should I be worried about the future? It appears to be in good hands.