

Democracy and Autonomy

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My charge today is to speak to the issue of democracy. I do so gladly, for the word is much bandied about these days, and much abused. In the early 1970s Chilean President Salvador Allende used to talk about those who "gargle with the word democracy". When the leaders of the seven richest countries on earth meet this week just a short distance from here a whole lot of gargling will be going on.

In the last four years half a billion people, from South Korea to Chile, from Eastern Europe to the Philippines to Brazil, have gained the right to vote. But the right to vote does not ensure democracy. True democracy depends on the capacity for autonomy. As Alexis de Tocqueville concluded after observing the infant American democracy in the early 19th century, "Without power and independence, a town may have good subjects, but it can have no active citizens."

Democratic forces are sweeping the planet. But anti-democratic forces are at work on an equally grand scale. Indeed, to me the issue of scale itself is intimately related to the possibilities of democracy. And so it is to that issue, scale, that I will devote the bulk of my remarks today.

The Madness of Separation

More than a century ago, Henry David Thoreau, an eyewitness to the beginnings of industrialization in this country remarked, "A man is wise with the wisdom of his time only, and ignorant with its ignorance. Observe how the greatest minds yield in some degree to the superstition of their age."

What is the superstition of our age? I submit to you that it is the belief in the inevitability and desirability of the planetary economy. This belief, as with most superstitions, is accepted as self-evident. We assume that long distribution lines are essential for the good life, that economic evolution moves in only one direction, from the simple to the complex, from the local to the global. From the Dark Ages to the medieval cities to the nation state and on to the planetary economy, and soon, to space manufacturing and interplanetary trade, history inexorably unfolds.

The planetary economy equates mobility with progress. The longer the separation between producer and consumer and garbage dump, the more modern the economy. Indeed, economic development is now defined as the process by which our economies become more and more fragmented, more and more dependent.

The modern economy separates the farmer from the kitchen, the worker from the factory, the bank from the depositor, and the borrower, the power plant from the

appliance. Today in this country the average commuter travels 20 miles to work. The average kilowatt hour travels more than 500 miles to do its bit of useful work. And the average food calorie travels 1500 miles from farm to stomach.

A few years ago I came across the ultimate extension of the principle of separation. In a Salt Lake City cafe I picked up a toothpick wrapped in plastic. On the plastic was the word "Japan". Japan has little commercial timber, and no oil. And yet it was considered economical to send little pieces of wood, maybe from the United States, and little pieces of oil derived plastic, to Japan, wrap one in the other, and send it back to Utah. This tiny toothpick has travelled possibly 50,000 miles to reach its final destination.

Last week I picked up a toothpick in Saint Paul and on the plastic outside the word Korea appears. I suppose that in the planetary economy Korea has somehow gained a comparative advantage over Japan in the manufacturing and export of toothpicks.

Not to be outdone my home state of Minnesota two years ago decided to export disposable chopsticks to that country last year. In my mind's eye I see two ships passing each other somewhere in the North Pacific. One is carrying little pieces of wood from Minnesota to Japan. One is carrying little pieces of wood from Japan to Minnesota. I'm sure a PhD economist can explain why this is economically efficient. But you and I know that it is simply madness.

Separation and Democracy

Separation is not only inefficient. It is undemocratic. We separate those who receive the benefits from those who feel the pain. We cut down rainforests in Indonesia to make coffee tables from New Yorkers. Utah farmers must lose their water to power plants that are supplying electricity for Los Angeles. Britain's coal fired power plants are killing the forests of Germany.

Separation demands transportation systems that invade someone's backyard. In rich countries, airplane noise invades our psychological privacy. One study estimates that in the rich countries represented this week in Houston more than 4 million people suffer physical damage from airplane noise.

Many more suffer from the invasion of freeways, high voltage transmission lines, railroads and the like. It is no accident that the governmental power most often exercised, and the one both conservatives and liberals enthusiastically support, is the right of "eminent domain", that is, the right to seize private property for the purpose of building transportation systems.

Indeed, entire countries have been subjugated to the exigencies of transportation. Nicaragua and Panama, to their enduring pain, find themselves occupying a piece of real

estate that allows relatively easy access between the Atlantic Coast of the United States, and Pacific markets. As a result of that accident of geography, the United States has invaded both countries more than 10 times, and currently continues to occupy Panama, all to either build a canal or protect one already built.

In the early 1950s, when the U.S. decided to take over from the French the war in Vietnam, our politicians justified that action as a way to protect the Malacca straits, the economical transportation route from Asia to the subAsian continent. Thirty years later every literate person of the industrialized world knows the crucial importance of the straits of Hormuz, that narrow band of water in the Mid East through which much of the world's oil passes.

Finally, and most worrisome of all, long distribution lines and the resulting complexity, demand larger and larger institutions to manage them. Initially these institutions were chartered by, and overseen by, the state. But gradually they outgrew nations in size and power. Instead of simply managing a system they have become masters of it. The 1980s may be remembered as the decade that these new managers, the planetary corporations, strode to central stage and demanded recognition and obedience.

Given President Bush's devotion to the American flag, it may be useful to consider how brazen American corporations have become in, one by one, unpledging their allegiance to that same flag. One by one, they are declaring themselves stateless, uncoupling themselves from the nation that gave them birth.

"I was asked the other day about United States competitiveness and I replied that I don't think about it at all", said the President of NCR. Adds a vice president of Colgate-Palmolive, "The United States does not have an automatic call on our resources. There is no mindset that puts this country first."

The battle cry for these planetary enterprises is free trade. Their goal is to strip us of all authority to manage our own affairs. In return they promise us economic efficiency. They would strip us of our capacity for autonomy, in return for which they promise us increased material wealth.

In this Brave New World of economic efficiency, anything that burdens the mobility of resource flows, whether capital, raw materials, or products, must go. We must jettison our parochial and uncompetitive loyalties to family, community, workplace, and even to nations. As the chairman of Gulf & Western declares, "You can't be emotionally bound to any particular asset."

In this new era of unfettered mobility, citizenship itself is redefined. We will cast our votes, not at the ballot box, but at the store. We will no longer vote as citizens, but as consumers. Stripped of their authority, governmental elections will become less and less meaningful. Instead we will influence the giant corporations that control our resources through our buying decisions, through our shopping power.

Of course, we are consumers, and we are investors, and programs like Green Seal and Socially Responsible Investment funds should be applauded for making us aware how our individual buying habits and investment portfolios interact with the larger world. But it is our rights as citizens, not our rights as consumers or shareholders, that are most threatened today.

In the last 5 years we have seen free trade agreements signed among the European countries and between the United States and Canada. Today we face a radical revision of the rules of world trade under the General Agreement of Tariffs and Trade(GATT). Each of these agreements chips away at the concept of sovereignty. Germany must abolish its 500 year old beer brewing purity laws. Canada can no longer subsidize reforestation programs. Japan must abolish its laws that protect small shops from being overwhelmed by giant shopping malls. U.S. states are stripped of their authority to enact stringent health and safety regulations.

Authority, Autonomy, and Power

We must fight against these assaults on our sovereignty. But we should also be clear. The GATT talks deal simply with the question of sovereignty. They do not deal with the even more important question of power.

Nicaragua, a member of GATT, had the authority to bring a case against the United States for its unilateral economic sanctions against Nicaragua. The GATT panel agreed with Nicaragua and found the U.S. in violation of GATT. At which point GATT's rules allow Nicaragua to economically retaliate against the U.S.!

Flint, Michigan has the authority to say no to General Motors' demands that it lower the corporations property taxes. Flint has the right to prohibit GM from closing its factories without notice. But Flint doesn't have the power to back up its authority.

Which brings me to the issue of autonomy. Power derives from the capacity for self-reliance. A planetary economy aims to erode that capacity and with it, our ability to defend ourselves against economic aggressiveness. We should not confuse self-reliance with self-sufficiency. Self-reliance is the capacity for self-sufficiency, not self-sufficiency itself. The capacity for independence gives us power.

Thomas Jefferson wrote eloquently on the relationship between local self-reliance and democracy. He believed that a vibrant democracy depended on the widest ownership of productive capacity. The yeoman farmer was the bedrock of Jeffersonian democracy. He or she had many skills, was adaptable to changes in the external situation, and possessed a practical, working knowledge about how real wealth was produced. That made this far less vulnerable to the bribes of corrupt political machines, and more capable of entering into decision making in an informed manner.

Jefferson worried about the growth of cities, where property-less and skill-less people would gather and become dependent on the handouts of political machines and

incapable of knowledgeably exercising their rights of citizenship. He was right to worry. Economist Robert Heilbroner noted some 20 years ago that the big change in our labor force in the last 100 years was that we had been transformed from a nation of farmers to a nation of clerks. We had lost the multi-skilled capacity of the farmer and instead become a nation of semi-skilled office workers. The same deskilling process is now occurring in our blue collar work force. We are losing the skills of autonomy and in doing so we are losing our capacity for citizenship.

In the Third World, land reform is still a pre-requisite for true democracy. Land, knowledge and the tools to sow the land, provides the household and community a certain bargaining power against larger economic and political institutions. When Europeans first came to the Caribbean they tried to create a sugar based economy for export back to the motherlands. But sugar plantations demanded backbreaking work. The natives quit that work to return to their small plots and raise their own food. The Empires undertook a series of measures, first restricting the growing of fruits and vegetables by the native populations, and later seizing their land, and still later, importing slaves from other lands who had no rights and no capacity for autonomy.

In the late nineteenth century, American factory workers often owned their own homes and had sufficient land for gardens. When they went on strike, their capacity to feed themselves gave them autonomy from and therefore some bargaining over, their employers. Gradually the workers lost their land, and their productive capacity, and had to organize to gain the right to receive welfare and food stamps from the state when unemployed or on strike. When we depend on handouts, we depend on forces beyond our control and sometimes, beyond our influence. We make ourselves vulnerable, and insecure.

Debt slavery is another way to lose autonomy. It seems reasonable to suggest that an individual borrower who spends money foolishly should eventually have someone else manage his or her financial affairs. But most of the borrowing by the Third World in the 1970s and 1980s was not done by individuals, but by national elites. It was done at the urging of international banks, and for purposes that themselves undermined the nations' autonomy. Very roughly, one third of Third World borrowing went to pay for the higher cost of imported energy. Another one third was invested in infrastructures like ports and roads and giant power plants which were intended to expand the exporting capacity of the country. And another third went to pay to feed and arm an expanded military capacity capable of quelling internal unrest stemming from export oriented development strategies, a lack of land reform, and a policy that usually repressed labor to keep production costs down.

Having borrowed wildly to pay for imports and to expand exports, Third World nations find themselves caught in the debt trap. They have become beggars, virtually helpless before the world banking community. Yet the prescription of the bankers is more of the same. More open borders to foreign capital and imports, more transportation related investments, expanded exports, more internal repression to keep down labor costs. Brazilian per capita production of basic foodstuffs, rice, black beans, manioc and

potatoes fell 13 percent from 1977 to 1984 but per capita output of exportable foodstuffs, oranges, soybeans, peanuts and tobacco jumped 15 percent. Today more than 50 percent of Brazil suffers malnutrition. Yet one leading Brazilian agronomist can still call for further export promotion "a matter of national survival". In the planetary economy a nation survives by starving its people.

Third World countries can only regain their autonomy if the rich countries agree to cancel large portions of this unpayable debt. Yet cancelling the debt, while necessary, is not sufficient. Third World governments must embrace an internal development path that enables the widest distribution of productive capacity, that enables its citizens and regions to gain the capacity for autonomy.

The Potential for Decentralization

Today we have the technical potential to radically decentralize our productive capacity. We can dramatically shorten the distance between producer and consumer, and move the economy toward a more human scale. And we can do this without losing any economic efficiency.

We can do so in part by extracting the maximum amount of useful work from our renewable resources. Sufficient sunlight falls on the average homestead in Houston, or in Nigeria or Indonesia, to generate all the home's energy needs. And we have the technical capacity to convert this sunlight into useful work. Consider the interesting experiment conducted in Arizona in the early 1980s. A housing developer embedded solar cell devices that use sunlight to generate electricity, inside roof shingles. Over a year, this rooftop power plant produced sufficient electricity not only for household needs, but to power the family's electric car.

These households became, in Alvin Toffler's words, "prosumers". They produced a certain amount of their own real wealth, while still interacting with the larger market economy.

Which brings me to the issue of efficiency. Efficiency enables independence, but is no substitute for it. If the Arizona house I described had used electricity in the same wasteful manner as its neighbors, and if the family car had achieved the same pitifully low efficiency levels as most American gas guzzlers, solar energy could not have brought independence. But efficiency is not enough. Reducing our consumption of oil from 2 barrels a day to 1 barrel a day would cut environmental pollution in half, but would still make us 100 percent dependent on planetary distribution systems and corporations. Not until we achieve a local productive capacity can we move toward true independence.

Those who preach efficiency make an important contribution. But in the long run the desire for independence may prove the best catalyst for efficiency. About 15 years ago, in San Luis Valley, Colorado, an interesting development took place. The residents were taught to build simple solar thermal collectors and rock storage systems. When

those who taught the workshops returned the next year they discovered that the residents were claiming to have gained a much higher proportion of their heat from these solar systems than seemed possible. The workshop leaders discovered that once the residents owned some supply, they began to modify their demand to maximize their independence. These were poor communities, and they consumed very little. But they could close off north facing windows, and even certain rooms.

We forget that although solar energy is a renewable resource, it is not inevitably decentralizing. Solar cells can be placed on individual homes, but they can also be placed in central facilities. In the late 1970s the federal government seriously considered building orbiting solar power satellite systems. Each would have solar cell arrays bigger than Manhattan Island, generating electricity equal to the output of six nuclear power plants. Power would be microwaved to terrestrial receiving stations, which would distribute the electricity on a regional basis.

Thus the same renewable fuel, solar energy, could provide the most decentralized or the most centralized form of power generation in world history. The decision about whether we ever widely make use of solar energy, or whether we do so in a democratic or undemocratic manner, is a political one. My point today is that we have the technical ability to think about the relationship of productive capacity and democracy.

Sunlight can be harnessed in an extremely decentralized manner. Sunlight could conceivably provide us with our future fuels. It cannot provide us with our future materials. For that we must look to stored solar energy. The basic material of a democratic future will be plant matter.

We tend to forget, especially in a place like Texas, that anything made out of a hydrocarbon, that is, out of fossil fuels, can also be fashioned out of a carbohydrate, that is, out of plant matter. Indeed, the war between the hydrocarbon and the carbohydrate for supremacy in the production of energy, industrial materials, and chemicals has been going on for 150 years.

In the 1930s, the collapse of world trade, coupled with an increasingly productive agriculture, encouraged scientists and engineers around the world to develop new domestic markets for plant matter. Germany converted wood into clothing and transportation fuels. The Italian ambassador to Britain arrived at the Court of Saint James one day dressed in a fashionable three piece suit made entirely from milk. Brazil set up a plant that converted coffee beans into plastic.

My favorite example of the possibilities of that era took place here in the United States when Henry Ford, on the 15th annual Dearborn Day Homecoming Day Parade, in August 1941, unveiled his biological car. The body was made of soybean derived plastics. The fuel tank was filled with corn derived ethanol. The tires were made of golden rods bred by Ford's friend, Thomas Edison.

The car worked fine. The plastic body withstood attacks by axes. Minor dents

could be banged out. The ethanol fuel made the car run cooler, more efficiently and cleaner.

Ford envisioned a post war economy when we would grow our own cars. Present agricultural productivity would allow us to harvest sufficient materials for about 2 cars per acre.

But after World War II oil prices plummeted and the Marshall Plan revived export opportunities for American farmers. Henry Ford's dream was shelved. Today the rising price of oil and the rising cost of pollution, is encouraging a revival of entrepreneurial interest in plant matter. A major British company has produced a 100 percent plant matter derived plastic. Soybean based inks are replacing petroleum based inks in newspapers. Ethanol is again making inroads into our transportation system.

A biologically based future may well be a decentralized future. Plant matter is bulky and therefore expensive to transport. Unlike oil, which can be extracted in Saudi Arabia, sent in giant tankers to the United States, and then refined in New Jersey, botanochemical complexes will be much smaller and more regional.

By radically improving efficiency, raising the level of recycling, and using plant matter to substitute for fossil fuels, we can radically change patterns of world materials trade and manufacturing. Advances in the process of manufacturing itself may allow us to dramatically reduce the scale of goods production as well.

The twentieth century saw the birth, and eventual dominance, of mass production. The twenty first century will see a return of batch production, based on the most sophisticated technologies. Instead of fixed assembly lines that produce hundreds of thousands of the same item, and thus demand national and even global markets, flexible manufacturing systems based on computer controlled machine tools can make hundreds of different products on the same assembly line and therefore can serve local or regional markets.

Today an IBM plant in Lexington, Kentucky makes 500,000-1 million computer printers a year. Ten years from now the same plant could make toasters, printers, microwave ovens, and other similarly sized products in the same factory. Today IBM's plant serves the continent. Tomorrow it would serve parts of Kentucky.

How far can we decentralize manufacturing? Let me offer two examples.

We all know and love laser printers. Ten years ago laser printers cost \$100,000. Today they cost \$1000-3000, offer typeset quality print, and an output of 12-15 pages per minute. Developments in the scale and speed of binderies and other aspects of book publication are proceeding apace. What does this mean?

Today the process of book publishing is inefficient and requires the transportation of physical products over long distances. The author sends a manuscript to the publisher

who sends it to a typesetter, who sends it to a printer, who sends it to a binder, who sends the finished book to a warehouse, who sends it to the retailer, who stores it in the basement awaiting the customer.

Ten years from now you might wander into a neighborhood bookstore and find only one copy of each book on the shelves. After browsing, you would order a book, and the staff would print it out right there. You could even choose typeface and print size. The cost of the book would probably be about the same as today, but consider what we have saved. No more transportation of manuscripts and books from place to place. No more guessing about the future. Supply will be perfectly matched with demand. No book will be published unless there is a demand for it.

The book may cost about the same, but all the proceeds will go to either the producer of the words, that is, the author, or the producer of the physical product, that is, the bookstore. Transportation intermediaries will be eliminated.

Recently, Texas engineers have carried the concept of the laser printer a step further. Instead of the laser moving rapidly back and forth across a page of paper, it moves rapidly across a slowly rising vat of plastic, hardening the plastic a fraction of an inch at a time. Out of the process emerges a 3 dimension physical product. Currently these are used for engineering models or medical models. Eventually they may be structurally sound enough for many household uses.

A Globe of Villages

These examples illustrate another point. In the future long distance trade would continue, but it will no longer consist of transporting products or materials but rather, in trading information. We will no longer trade molecules, but rather electrons and photons. We will import a good idea, whether it be software improvements to drive our machine tools or books and entertainment to enrich our knowledge and cultures. But most of our material needs will be met near to home.

Informational trade is non-polluting and non invasive. The electromagnetic spectrum is renewable and virtually inexhaustible. To be cut off from information is to suffer far less injury than to be cut off from fuels or food. The power of planetary corporations over our lives will be severely diminished when they can no longer threaten us with starvation or freezing.

Obviously such a democratic economy will not be easily achieved. Indeed, those leaders who are meeting in Houston this week would move us in the opposition direction. But a democratic future is possible. It rests on our ability and willingness to change the rules.

The most enduring impact of the environmental movement, I believe, is that it taught us the distinction between price and cost, that is, between what I pay as an individual, and what we pay as a society. We have developed methodological tools to

quantify many of these external costs, and are gaining the political power to demand that these costs be fully reflected in the prices we pay for our goods and services.

As we do so the marketplace will adapt. I realize that I've used the dread word "ethanol" several times here in Texas. And I realize that there are those who will tell me that ethanol is only competitive with gasoline and fossil fuel derived additives because it receives a 60 cent or so subsidy in the form of tax benefits from the federal government.

Fair enough. But why ignore gasoline's bountiful subsidies? The American Public Health Association calculates medical expenses caused by gasoline generated pollution at about 50 cents a gallon. Add the costs of global warming and acid rain and the total environmental subsidy would far exceed 60 cents. And that still excludes the tens of billions of dollars the Pentagon spends each year to protect our Middle Eastern oil supply lines, or the damage to marine life from the 10,000 or so oil spills each year.

The most dramatic changes in comparative prices will occur when we accept responsibility for reducing carbon dioxide emissions. Today the world is doubling CO2 emissions every 20 years. The vast majority of the world's governments, led by Europe, have agreed to freeze and then reduce CO2 emissions in the future. The U.S. resists. White House Chief of Staff John Sununu thunders, "We will not sacrifice the coal and oil industries to the environment". Sununu has it precisely backwards. It is the environment that has been sacrificed to the fossil fuel industry. Environmentalists are simply saying, "no more subsidies". Let fossil fuels pay their full costs.

And what might the full costs be? Our Environmental Protection Agency suggests that a \$49 per ton tax on carbon emissions might be appropriate. This would double the price of coal. It would, in effect, price coal out of the energy market. It would open up a market for hundreds of millions of tons of carbon dioxide absorbing plant matter and make efficiency even more attractive. By changing the rules we can guide investment capital and entrepreneurial energy onto paths more compatible with true democracy. We can use our ingenuity to couple the right to vote with the power of autonomy. What most Americans don't know is that before our declaration of political independence we had declared our economic independence.

When England levied what we felt was an unjust tax, the colonists responded with a passion for economic self-sufficiency. Frugality came into fashion. All things English were placed on the black list. Students at Harvard, Yale, and Princeton voted to forego wearing imported gowns to their graduations.

Delegates from every colony gathered for the first time in New York and out of that meeting emerged the New York Chamber of Commerce, the first such body in the land. The Chamber's first campaign slogan was a curious one for an association of merchants, "Save your money and you can save your country".

Bostonian Sam Adams, the fiery leader of the movement, knew that frugality was not enough. To become fully independent, Americans must produce at home what was

previously imported from England. Adams, a strict and devout Puritan, urged the clergy "to preach up Manufactures instead of Gospel". Members of Boston's Whig Party demonstrated their patriotism by nursing tea leaves and mulberry trees in their gardens. New England farmers were exhorted to turn their oak plains into sheep pastures, and produce enough wool to clothe every American. And colonists were urged to abstain from eating lamb or mutton to encourage American woolen manufactures. In less than a year the boycott had contributed to a disruption of trans-Atlantic trade that cost thousands of British workers their jobs. The mightiest nation on Earth was forced to capitulate to one of its colonies. The taxes were repealed.

We had demonstrated our potential for economic self-reliance, and that demonstration allowed us, ultimately, to declare our political self-reliance. Today the world is racing in precisely the opposite direction. We are moving toward dependence. That is what the G-7 meeting is all about. The leaders of the rich nations, on our behalf, are issuing a Declaration of Dependence. They forget Benjamin Franklin's sage advice, "The man who would trade independence for security usually deserves to wind up with neither."

We have made that trade, and we have become not more secure, but less. Less secure in our economic lives, less secure in our communities, and less secure about the environmental future of the planet. A more secure, and more democratic path is possible. But it requires that at this crucial historical juncture, when we still retain some of the powers of citizenship, that we vigorously exercise that power to enhance, not diminish, the potential for democracy. We must abandon the superstition of our times and regain our capacity for autonomy. Only then can we preserve our cultures, defend our communities and truly call ourselves democracies.

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