

American Competitiveness in a Changing World

BY

U.S. SENATOR

MAX BAUCUS

(D-MONTANA)

**RANKING DEMOCRATIC MEMBER
U.S. SENATE FINANCE COMMITTEE**

December 2005

Contents

Foreword	5
America’s Place in the World	7
Education and Competitiveness	23
Voyages of Trade and Discovery	37
Health Care and Competitiveness	51
Savings and Economic Competitiveness	59
Energy Competitiveness	71
Immigration and Competitiveness	83
A New American Renaissance	91
Staff Contacts	99

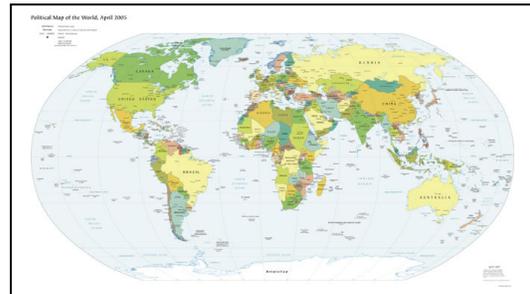
Foreword

The need to strengthen our country's global competitiveness is a new idea for many Americans. America has been used to global dominance. That other countries could pose serious economic and political challenges was unthinkable just a few years ago.

But China, India, and other nations are on the rise. Countries around the world are making carefully considered commitments to educating their children in math, science, and engineering. They are preparing new generations to win the high-skill, high-wage jobs of tomorrow on a planet where almost any work can be done for almost anyone from almost anywhere.

Already, American businesses big and small are looking beyond our borders to the new partners, new ideas, and new workers rapidly be-

coming available to them. Technology and trade agreements are making nations close neighbors for commerce, no matter how physically far apart they are.



There are many benefits for Americans in a world where nations and corporations can work together seamlessly. But make no mistake: These new partnerships are remaking the world's economic map. It will take American effort to keep our country at the forefront in this exciting time of challenge.

So it's time to get our economic and educational houses in order. It's time to tackle the tough issues that can drag down American advancement — like high health costs, high deficits, and our dependence on foreign sources of energy. It's time to renew our country's commitment to research and innovation. It's time to ensure that smart tax and trade policies keep American businesses, workers, goods, and services moving forward in world markets.

America still leads the world. But we need a bold agenda to maintain America's economic leadership and to preserve high-wage American jobs here at home. The speeches I have collected in this volume, all given on the floor of the United States Senate in 2005, offer a foundation for that

agenda. In 2006, these ideas will form the basis of a comprehensive legislative package for advancing American competitiveness.

I look forward to working with interested Americans to advance that legislation in Congress. But more than that, I look forward to the great conversation that Americans are going to have — that we must have — about the issues addressed in this book.

That's what strengthening America's global competitiveness is really about. We need to plan for America's economic future, with our eyes open. We need to work together to create the brightest possible future for our great country. And we need to start now.

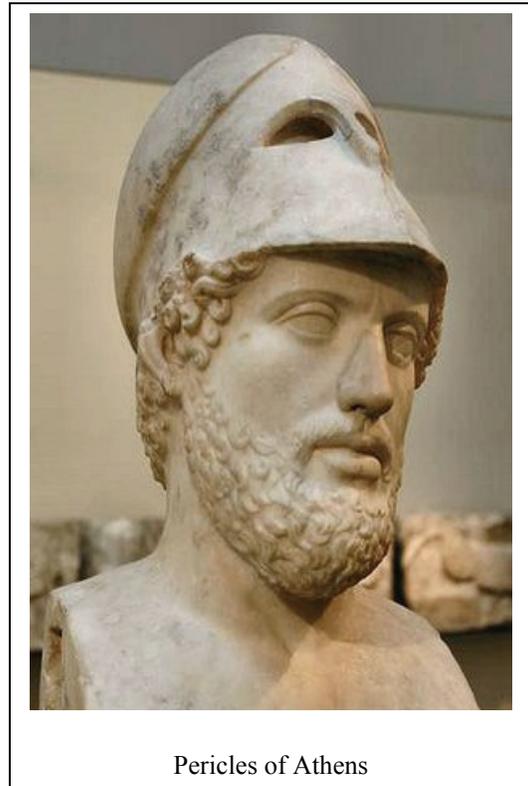
A handwritten signature in blue ink that reads "Max Baucus". The signature is written in a cursive, flowing style.

America's Place in the World

Originally delivered June 24, 2005

A little less than 2500 years ago, in Athens, Pericles the king looked out from the Acropolis. In the bay beyond the port city, he saw some of Athens's 200 ships, which brought peace, commerce, and Athenian pottery to a free-trade area of more than 100 Greek city-states. Pericles boasted: "The wares of the whole world find their way to us."

Pericles stood astride one the wealthiest, most culturally-advanced states of his time. Greeks had vanquished the evil empire of Persia to the east. Pericles had transformed the Delian League, a defensive alliance formed to contain Persia, into an Athenian empire. And Pericles advanced the world of ideas, advocating the new idea of democracy.



Pericles of Athens

Said Pericles: “Athens alone, of the states we know, comes to her testing time in a greatness that surpasses what was imagined of her. . . . Future ages will wonder at us, as the present age does now.”

Pericles had every reason to believe that Divine Providence had smiled on him and on his city.



Charles V, Holy Roman Emperor

A little less than 500 years ago, in Aachen, Charles V looked up to receive the crown of Germany. Charles had become the most powerful ruler in Christendom: Holy Roman Emperor and sovereign over what is now Spain, Central Europe, southern Italy, and Spain’s new overseas colonies. Sir Walter Scott said: “The sun never sets on the immense empire of Charles V.” Charles sought to unite his empire into a universal, multina-

tional, Christian empire. His motto was: “Even further.”

Charles had every reason to believe that Divine Providence had smiled on him and on his empire.

A little more than 150 years ago, in London, Queen Victoria, adorned in pink, silver, and diamonds, escorted by a troop of the Household Cavalry, rode in a closed carriage from Buckingham Palace to Hyde Park to see the Great Exhibition at The Crystal Palace. Trumpets flourished, and a thousand voices greeted her, singing Handel’s Hallelujah Chorus.

She walked through the Exhibition, a world’s fair, and saw exhibits displaying the riches of Britain’s far-flung colonies: carved ivory furniture from India, furs from Canada, hats made by convicts from Australia. The theme of the Exhibition was one word: “Progress.”

Victoria saw exhibits representing an England that was industrially supreme. England controlled one-third of the world’s international trade. The English merchant navy handled three-fifths of the world’s oceangoing tonnage. Senator Daniel Webster called the English empire:

“a power which has dotted over the surface of the whole globe with her possessions and military posts, whose morning drum-beat, following the sun, and keeping company with the

hours, circles the earth with one continuous and unbroken strain of the martial airs of England.”



Victoria had every reason to believe that Divine Providence had smiled on her and on her empire.

The citizens of Periclean Athens, Habsburg Spain, and Victorian England each could feel that their nation had reached the zenith of human endeavor. From where they stood, Pericles, Charles, and Victoria were the most powerful leaders of their time. Their centuries belonged to them.

Pericles looked to “future ages.” Charles envisioned going “even further.” And Victoria saw ever more “progress.”

But within a century, each nation had been eclipsed.

Periclean Athens fell victim to war. Not long after Pericles’s death, the devastating Peloponnesian War with Sparta weakened Athens. Within a hundred years, the great city was dominated by a little known northern country called Macedonia.

Charles V, seeking to harness a new technology of shipbuilding and royal navies, incurred spiraling defense costs. Charles’s wars caused him to pledge his revenues to bankers for years into the future. By 1543, two-thirds of his ordinary revenue went to pay interest on past debts alone. Not long after Charles’s death, dynastic division rent his empire apart. And within a hundred years, Europe had become a continent of many roughly-equal powers.

Not long after Victoria’s death, England found itself surpassed by American economic growth and mired in World War. And within a hundred years, Britain’s once-great empire had spun off into a splintered commonwealth.

And so began what Henry Luce called “the American Century.” At the beginning of the 20th century, America’s economy was already 40 percent larger than China’s and more than twice as big as Britain’s.

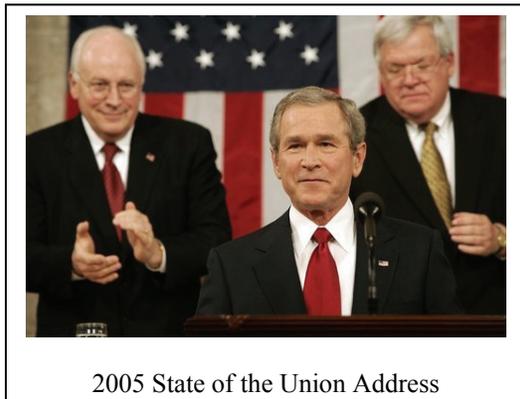
And in the wake of World War II, America was the only major power

whose homeland had not suffered massive devastation. America's economy dominated the world. At mid-century, America's gross domestic product was 5 times Britain's, 5½ times China's.

Look out today at the ships docked in the port of Seattle. Count the containers that bring grain and beef from Montana to the world. Count the containers that bring "the wares of the whole world . . . to us."

On behalf of a great and powerful nation, on February 2, President Bush could look out over lawmakers assembled in the House of Representatives and say:

"[W]e've declared our own intention: America will stand with the allies of freedom to support democratic movements in the Middle East and beyond, with the ultimate goal of ending tyranny in our world."



America's is a great promise. Ours is the leading nation. We live in the preeminent country on earth.

Americans have every reason to believe that Divine Providence has smiled on us and on our Nation.

Today, Americans account for fewer than 1 in 20 of the world's people. But Americans produce more than a fifth of the world's economic output.

Today, America has a \$12 trillion economy, three times the size of Japan's, five times the size of Germany's.

But China's economy, when measured on a purchasing power parity basis, is now \$7.3 trillion. And it is growing fast.

Like Athens or Spain or England in their day, America is the greatest power of our time. But our lease on greatness is no more certain than those of the great powers of the past. We, no more than they, cannot maintain our leadership of the world without effort.

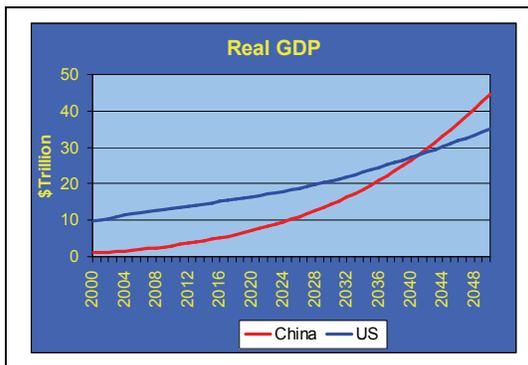
The next two decades will challenge America. We face competition from rising economic powers, powers with vast populations with nowhere to go but up. And foremost among those competitors will be China.

We cannot blithely sit back and rest on our laurels. We must energize ourselves anew to maintain America's place in the world.

Over the last two decades, China's economy has grown an average of 9.5 percent, roughly three times as fast as America's. And although America is a populous country of almost 300 million people, China is home to 1.3 billion people. India is not far behind, with just over a billion people.

Starting in the late 1970s, China and India began to reform their economies. And in the late 1980s, Communism collapsed in Eastern Europe. In the last two decades, these transformations have led to nearly half the world's population — about 2.6 billion people — entering the global workforce. The world has only just begun to feel the effects of this awakening.

Visit export-zone China, and you will see that corporate America and corporate Japan are already well in evidence. The international corporations already understand that China will fuel this century's economy.



Much of America, however, still has a shock ahead of it. Before 2020, China may surpass America as the world's largest economy. Super-

power America has competition, after all. And we had better hustle, too, or the Chinese will eat our lunch.

Well-educated young people in China, India, and Eastern Europe increasingly have the skills to compete with Americans for high-value-added jobs. Companies are moving jobs offshore to workers in these countries not only because they work for less, but also because they are well educated in math and science.

An old Chinese proverb says: "What you cannot avoid, welcome." Dramatic Chinese growth appears unavoidable.

China has drunk the Kool-Aid of capitalism and it is not looking back. Big city China hustles, bargains, and works hard for a better life. Skylines soar in Shanghai and Beijing.

Big city Chinese public street signs come in Chinese and English. Western and Japanese companies' neon signs dominate the skyline. Western commerce is well represented, half a world from the West. China is no longer as foreign as you might expect.

You can see one district of Beijing that still sports Cyrillic billboards and shop signs. But this Russian enclave sells furs, not ideas. You can see which economic system won the cold war.

They call it "market socialism." And the European economic tradition

is full of the melding of the two systems, so we cannot necessarily say that the term is a contradiction. But plainly the Maoist state-controlled economy is on the descent, and free-enterprise, self-interested capitalism is on the rise. Chinese government officials smile as they explain, quote, “Communism.”

The bargaining economy now permeates China. Chinese merchants love to haggle over sales great and small.

The change began with Deng Xiaoping, who ruled from 1978 to 1997. But the change has now firmly taken root. Some will explain, in muffled tones, that in the wake of the 1989 Tiananmen massacre, the government made a concerted effort to demonstrate that China was “open for business.”

China, India, and Eastern Europe are now actively seeking to move underemployed populations into more productive occupations — occupations that America and other developed countries once dominated. Millions of jobs in high-tech manufacturing, software development, and services are moving to these growing labor markets.

More than 700 million workers live in China. Half of them still work in agriculture and forestry. More than three out of every five Chinese still live in the countryside. As many as 200 million underemployed Chinese workers in rural areas could

move into the cities and industrial jobs.

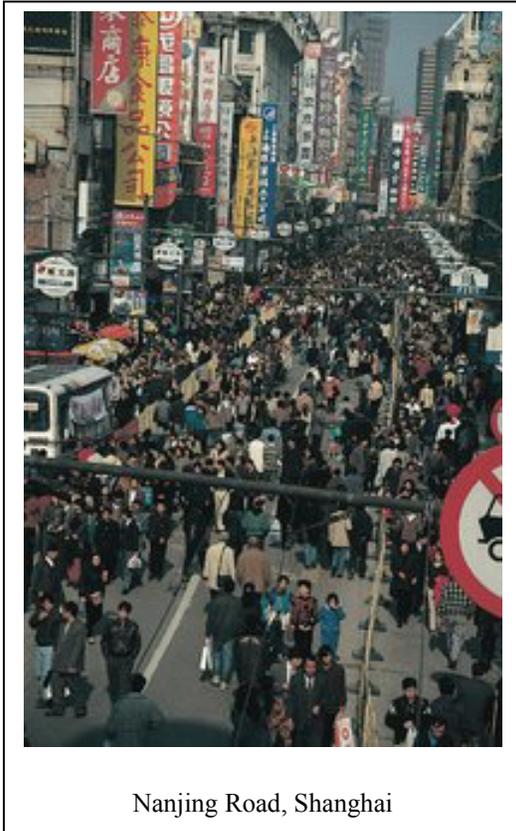
This huge pool of surplus labor presents China with a vast opportunity to modernize its economy, continue rapid growth, and move its people up the value-added ladder into more productive employment.

Tour an American or Japanese company plant in Shanghai. You will see rows of diligent, uniformed workers filling rows of clean, well-lit work stations. The plant manager will tell you how he pays these workers \$1 an hour — about \$2,000 a year — plus food and housing benefits. That is a good wage in a country with an average income of \$1,100 a year. Compare that to America’s average income of \$37,600. Plants like this boast of a 90-percent retention of employees.

The plant manager will complain, however, that for the less-sophisticated operations, still-lower-cost centers are already nipping at their heels. Even within China, competitive businesses need to profit from innovation and new ideas, or fall victim to even lower-cost competition.

In the long-term, Chinese labor rights must advance to help lift Chinese wages. But with 200 million job seekers at the door, substantial wage increases still appear a ways off. For the near future, China appears to own the role of the world’s low-cost manufacturer.

And China's workers are not all unskilled laborers. China has focused on its education system. It is quite good for a country its size. The literacy rate tops 86 percent.



Visit a primary school in a middle-sized Chinese city. Bright, enthusiastic, charming children will greet you and win your heart. Happy first graders will greet you in English. Chinese schools are preparing students to compete in an intertwined, multinational, multilingual world economy.

Are American schoolchildren learning Mandarin? Are they even learning Spanish? The coming generation of Chinese businesspeople

will do business around the world. Americans need to broaden our linguistic abilities, or Chinese businesspeople will cut the deals before us.

China's growing population of college graduates also fuels its increasing strength in high tech. Last year, nearly three million Chinese entered the workforce from colleges and graduate programs. That was one-third more than the year before and double the year before that. Last year, China produced 220,000 new engineers. America educated only 60,000.

China now has an unusually open economy. Foreign investment in China is more than a third of its economy, compared with only 2 percent in Japan. In 2004, the sum of exports and imports is likely to reach three-quarters of China's GDP, far more than in other large economies. In America, Japan, India, and Brazil, the figure is 30 percent or less. China has allowed foreigners to participate in its growth and development.

China has stoked the engines of its economic development through means both fair and foul. China promotes its domestic high-tech industry at the expense of foreign firms. World Trade Organization commitments prohibit discriminatory taxation of foreign products. But China applied a 17 percent value added tax on all semiconductor sales, and then rebated 11 percent of this for semiconductors produced in China and 14 percent for semicon-

ductors designed and produced in China. The United States had to bring a WTO case to challenge the policy. China agreed to drop the policy last year.

And China does an abysmal job of protecting patents and intellectual property. Walk into an open-air market in Shanghai, and you can buy ties that bear less than credible labels: well-known brand names, “Made in Italy.”



Shanghai marketplace sign

And it is not just ties that Chinese businesses knock off. A red sign festooned a Shanghai market: “OBSERVE WILLINGLY ‘TRADEMARK LAW’; PROTECT INTELLECTUAL PROPERTY,” it cajoled. But as you walk under the sign, literally dozens of men hawk DVDs and watches of plainly dubious vintage.

And China also uses its currency exchange rate to distort the market. China has set, or pegged, its currency to the dollar, with an exchange rate of 8.28 renminbi to the dollar. Critics argue that as China’s economy has grown, its currency should have appreciated against the dollar, making

Chinese goods more expensive relative to American goods. The renminbi has not appreciated — and Chinese goods have not gotten more expensive — because of the peg. Many argue that China keeps the peg in place to support its manufacturing sector.

The reality may be more complex. But there is no denying that China does not have a free-floating currency. And there is no denying that a free-floating currency would be better for China and its trading partners, over the longer term. How to get there, especially with China’s badly insolvent banking system, is what the debate is about.

China’s economy could easily stumble, as America’s did during the booms and busts of the 19th century. But barring any truly devastating crisis, China’s economy will likely continue its upward trajectory. China will become the world’s largest economy. The only question is when.

Faster growth in China should mean faster growth elsewhere. If China’s real income grows by 8 percent per year, and its income distribution remains unchanged, then by 2020, China’s top 100 million households will have an average income equal to the current average in Western Europe. That is a giant new market for consumer goods.

China’s boost to global growth could exceed even those that the world economy has recently enjoyed

from the spread of computers. Like that IT revolution, China's growth may lead to the loss of some jobs in the United States. But it will also likely lead to the creation of different jobs in greater numbers.

Notwithstanding the pervasive influence of American and Western culture even in once-isolated China, one senses a love-hate relationship with America. Chinese officials will note how our two nations had once been sworn enemies in a war that Americans, with our short memories, forgot long ago. On Chinese streets, men will walk up to you, ask you if you are American, and debate you about American foreign policy.

The Chinese Government maintains power through two tools: one, an improving standard of living, and two, nationalistic sentiment. In furthering the latter, China often paints America as the enemy keeping China from reuniting with Taiwan. The U.S. is thus second only to the Japanese in unpopularity in China. It need not be so.

Together, America and China accounted for half the world's economic growth in recent years. We are economic partners. We share interests in a non-nuclear Korean peninsula. And we share a common concern with radical terrorists. But many Chinese appear put off by the swagger of current U.S. foreign policy. We still have work to do to thaw U.S.-Chinese relations.

No American Government can prevent the challenges to the American economy posed by the increasing sophistication of labor markets in China, India, and Eastern Europe. We must accept the reality of these challenges.

The ancient Persians looked with disdain at the Athenian marketplace, the Agora. It was a proverb among the Persians that there: "Greeks meet to cheat one another." But we can no more prevent the spread of the world's commerce than Persia could stop the spread of Hellenism.

Some may seek to avoid the unavoidable future. But we would do better to learn how to embrace it. We must adjust our policies to meet the challenge.

The American Government cannot stop international companies from hiring overseas workers instead of American workers, without inflicting great harm on the American economy. American companies compete in a global environment. If an American company cannot hire those hard-working but low-wage Shanghai workers, a foreign company will. That other company will sell the products of that factory at lower cost. Consumers worldwide will buy them. And the American company will lose the business and jobs.

Neither can we erect tariff barriers that wall off foreign competition.

Higher tariffs are taxes that harm both the foreign sellers trying to sell into America and the American buyers who seek to buy foreign products. Tariffs impose a dead-weight loss on both sides. And protectionist measures invite retaliation. Protectionism thus ultimately harms a country's economy. Protectionism puts at even greater risk the jobs the politicians seek to protect.

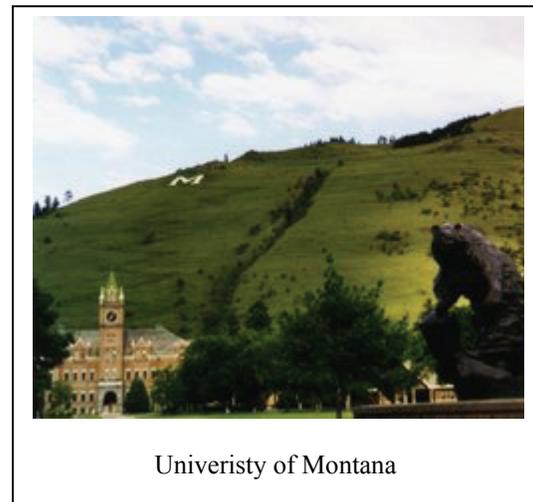
Rather, to help prepare America to meet the challenges of the next 2 decades, we need to ensure that Americans develop the skills needed to continue to compete in higher-value-added fields. We need to continue our tradition of rewarding innovation and risk-taking. We need to fight to open new markets around the world. And we need to remove burdens that hinder our international competitiveness, like the high cost of health care in America.

Engineers play a critical role in the development of new jobs and new industries. In 1975, the United States ranked third in the world in the percentage of 24-year olds who held a science or engineering degree. By 2000, we had slipped to fifteenth. By 2004, we were seventeenth. At the same time, the Department of Labor projects that new jobs requiring science, engineering, and technical training will increase four times faster than the average national job growth rate.

Only a little more than 1 in 20 high school seniors who took the

2002 college entrance exam planned to pursue an engineering degree. The United States trains only half as many engineers as Japan and Europe, and less than a third as many as China. We should increase scholarships and loan forgiveness for engineering students to entice more young Americans to study engineering.

We should support community colleges, and strengthen the link between them and the workforce. Schools can then develop training programs relevant to jobs that actually exist in any given community.



We should make it easier, consistent with the requirements of national security, for foreign students to study in America. America has benefited from our ability to attract and to retain the best and brightest students from countries all over the world. Yet, since 9/11, many students are having a difficult time getting visas to study in America. Foreign applications to American graduate schools fell 28 percent in 2004. And enroll-

ments of foreign students at all levels of college declined for the first time in 30 years.

Foreign students are increasingly studying in Europe and elsewhere. We are losing a generation of foreign minds — minds that in another time would have come to our shores. These declines are due in large part to the difficulties foreign students now face in getting a visa to study in America.

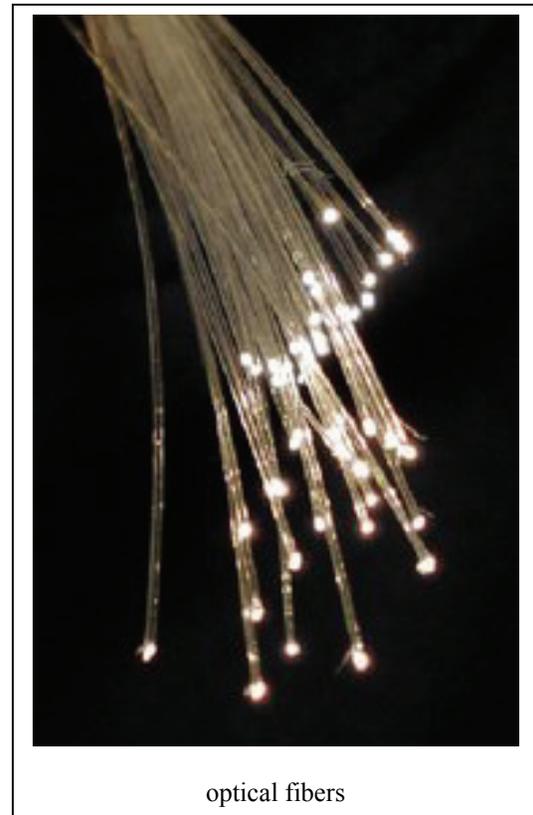
We must not compromise our security needs to host foreign business-people or students. But there must be ways to streamline visa procedures and otherwise lighten the burden to make it easier for foreigners to study and conduct business here.

American universities and research institutes do much of the most innovative research in the world. But over the last 20 years, Federal research funding in the physical sciences and engineering has actually declined by nearly one-third as a share of the economy.

Money invested in Federal research programs pays dividends many times the investment. For example, National Science Foundation funding of research in the basic sciences and engineering has helped discover new technologies that have led to multi-billion dollar industries and created countless new jobs. These include jobs in fiber optics, radar, wireless communication, nanotechnology, plant genomics,

magnetic resonance imaging, ultrasound, and the Internet.

We should invest in our future by fully funding research support organizations such as the National Science Foundation, National Institutes of Health, and the Office of Science at the Department of Energy.



Without Government support, private investment in research and development would be less than it should be. The society as a whole needs to foster the research that will build a better nation in the future. The research and development — R&D — tax credit has helped. But we can improve the R&D tax credit by simplifying it and making it permanent.

The Government has expended a tremendous amount of time, money, and manpower negotiating trade agreements with countries like Bahrain, Morocco, and Colombia. None of these small economies offers much to American exporters.



By contrast, last year, American companies lost more than \$3.8 billion to business software piracy in China alone. Putting more resources toward defending American intellectual property rights would have a real effect on the bottom line for many American companies.

American companies sold \$626.6 billion in copyrighted products in 2002, 6 percent of American GDP, and employed 5.5 million workers, or 4 percent of the American workforce. Their foreign sales and exports amount to \$89 billion, more than most other export sectors. Our intellectual property is among our most valuable assets. Some would say it is now the American comparative advantage. We must do a better job protecting it.

The political bargain that has kept a consensus in support of liberalized

trade has long been that in exchange for labor market flexibility, those hurt by trade would have help finding new jobs. That bargain has eroded.

America spends less on labor-adjustment assistance than any major industrialized country. Japan spends nearly twice the share of GDP, Canada nearly three times, and Germany more than eight times as much.

Trade adjustment assistance — TAA — provides retraining, income support, a health insurance tax credit, and other benefits to workers who lose their jobs due to trade. TAA is not a handout for idle workers, but a means to retrain them for competitive employment and help them through the transition.

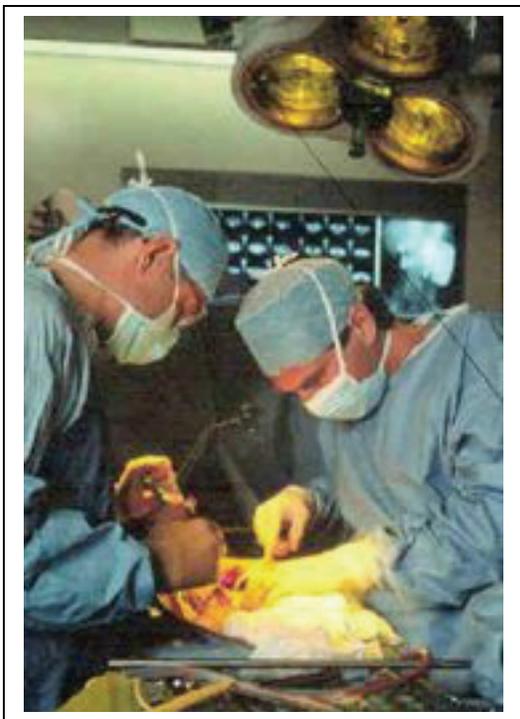
We should expand trade adjustment assistance to service workers and emphasize, and possibly expand, the wage insurance program.

And we need to do more to keep jobs in America. For most American companies, health-care costs are the single biggest disincentive to hiring new workers. The costs are enormous, increasing at a double-digit pace, far outstripping health-care costs in other countries.

America spends more on health care than any other country in the world. Per capita spending on health care in America is nearly 2½ times the average in the industrialized world.

Employers in America also bear much of the cost of the rising number of uninsured Americans through cost-shifting by hospitals and other health-care providers. Last year, employers paid an average of nearly \$2,900 for single employee coverage and more than \$6,500 for family coverage.

By contrast, most employers in other industrialized countries do not pay anything for their employees' health care. A government-sponsored universal health program bears those costs. The difference is hurting America's competitiveness.



We can take several small, practical steps to help lessen health care's burden on American companies. We could provide tax credits to small employers, fund employer-based group-purchasing pools, increase

funding for high-risk pools, expand Medicaid and the State Children's Health Insurance Program, and permit a Medicare buy-in for the near-elderly.

But we cannot keep kidding ourselves. We need real change to address the problem of American health-care costs. We need to do so, to meet the challenge to America's place in the world.

In reality, the economic reforms in China, India, and Eastern Europe that cause the challenge to American leadership are a good thing. We should want China, India, and Eastern Europe to educate their people, open their markets, and trade with us.

Since World War II, there has been no greater advocate for free markets around the world than America. America has much to gain in a world of free markets. When foreign workers move into more productive work, their incomes will rise. As foreign workers become more prosperous, they will become better able to buy American goods and services. And by keeping our markets open to foreign products, consumer prices fall on everything from footwear to electronics, making the American consumer's dollar go further. Everyone can be better off.

Trade is not a zero-sum game. Increasing competition from China,

India, and Eastern Europe does not mean that America will suffer.

Remember, after World War II, America prospered as it helped to rebuild a shattered Europe. Competition from recovering European economies did not hurt America. Rather, as Europe emerged from the devastation of war, the American economy grew along with Europe's. With the right policies, much the same can happen perhaps with much larger positive effects with the growth in China, India, and Eastern Europe.



Remember, in 1957, when the Soviet Union launched Sputnik, the first man-made satellite to orbit the Earth. The challenge of Sputnik gave America the political will to devote the resources needed to become the world's premier space power.

In the same vein, the economic challenge of the next 2 decades presents its own opportunities. The challenge posed by economic development in China, India, and Eastern Europe could help create a political consensus in favor of change and growth.

The former Librarian of Congress Daniel Boorstein wrote:

“The most important lesson of American history is the promise of the unexpected. None of our ancestors would have imagined settling way over here on this unknown continent. So we must continue to have a society that is hospitable to the unexpected, which allows possibilities to develop beyond our own imaginings.”

We cannot rest on our laurels. But if we remain open to the unexpected, if we allow the possibilities to develop, we can maintain America's leadership in the world.

It will take work. But if we re-double our education, if we open more markets, if we better manage our health-care, then we can face the challenges of the decades to come.

We must get to work. But if we do, we can make an America that, in Pericles's words, “comes to her testing time in a greatness that surpasses what was imagined of her.”

If we do, America can continue to “stand with the allies of freedom” throughout the world.

And if we do, “Future ages will wonder at us, as the present age does now.”

*151 CONG. REC. S7390-93 (daily ed.
June 24, 2005).*

Education and Competitiveness

Originally delivered June 27, 2005

In the book of Isaiah, the prophet wrote, “[M]y people have gone into captivity, because they have no knowledge.”

Francis Bacon wrote, “Knowledge itself is power.”

And when H.G. Wells summed up his history of the world, he concluded: “Human history becomes more and more a race between education and catastrophe.”

In the next two decades, America’s history will become more and more a race for economic leadership. For more than a century, America’s economy has set the pace. We have led all competitors. Year after year, we have become used to winning the race.



But now, over our shoulder, we can hear the footsteps of another run-

ner. That competitor is China. And it is gaining fast.

If we wish not to go into economic subservience, if we wish to maintain our economic power, if we wish to avert economic misfortune, the answer is education.

America's economic leadership has been a remarkable achievement. We Americans are just 4.6 percent of the world's people. More than a fifth of the world's people live in China. There are nearly 4½ times as many Chinese as there are Americans.

Yet America produces 60 percent more goods and services than China.

That is how Americans can enjoy one of the world's foremost standards of living. The average American's share of our economic output is \$37,610 a year. The average Chinese's share of theirs is \$1,100 a year.

But from a slow start, China has picked up the pace. Starting with Deng Xiaoping in the late 1970s, China began to reform its economy. Deng was eminently practical, when it came to economic philosophy. He said: "It doesn't matter whether the cat is black or white, as long as it catches mice." Today, you can find those capitalist cats everywhere in China.

Over the last two decades, China's economy has been growing at an average of 9.5 percent, nearly three times as fast as America's. And some project that within 20 years, China's could become the world's largest economy, ending more than a century of American leadership.



Deng Xiaoping

You can see how they do it at an American or Japanese factory in Shanghai. You see rows and rows of hardworking workers, in colorful uniforms, at well-lit work stations. The company pays them about \$2,000 a year, plus food and housing benefits. But that is good money in a country with an average income of \$1,100 a year. The workers there want to keep their jobs. And 200 million other workers stand ready to take their jobs if they do not.

The challenge for America in the decades to come will be: How can America compete with that factory in Shanghai? How can we get paid \$37,000 a year or more to make goods and perform services, when there are Chinese workers willing to work hard for \$2,000 a year?

The answer is not protectionism. We cannot build a wall around America. We cannot lift the drawbridge and flood a moat around our Country.

If American companies do not employ those willing workers at the Shanghai factory, companies from Japan and Italy and China itself will. Then Japanese and Italian and Chinese companies will sell products more cheaply into America. And American consumers will gladly buy those products at lower prices. American consumers will insist on buying those products at lower prices.

If America raises tariffs on goods made in China, then American consumers will pay more for their cost of living than will people in other countries. Americans will have less money to spend on other things that they want, less money to spend on other things in America. The American economy will be smaller, if America raises tariffs.

If America raises tariffs, then American businesses will pay more for their industrial inputs than will businesses in other countries. American businesses will become less

competitive, lose sales, and lose jobs. Once again, the American economy will be smaller, if America raises tariffs.

No, the answer to how America can compete with that factory in Shanghai is not protectionism.

The way that we can get paid \$37,000 for our work — when Chinese workers are willing to work for \$2,000 — is for Americans to add more value. Americans earn more because we produce better. Americans produce smarter.

And that means that for us to remain economic leaders of the world, Americans need to stay smarter. We need to educate our children and our workers so that American workers can add more value in an hour of work than workers in any other place in the world.

Knowledge will be economic power.

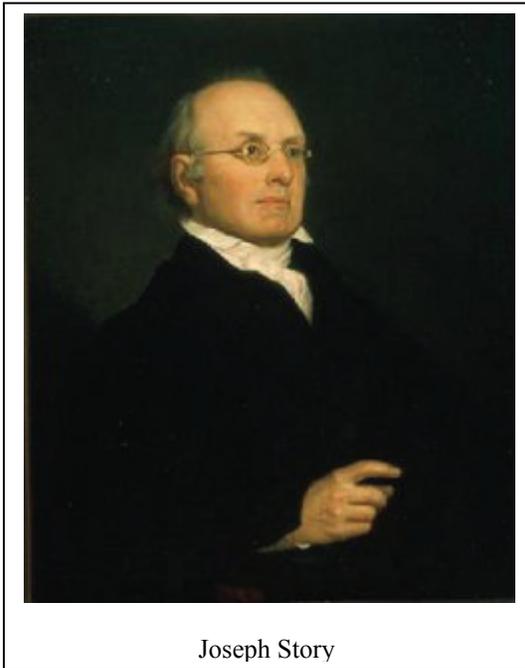
Ensuring that we continue to have more knowledge than the Chinese will not be easy. China has worked on its education system. Nine out of ten Chinese can read.

It is very Chinese to take the long view. More than 2,600 years ago, the master Kuan Chung said:

“If you plan for a year,
plant a seed. If for 10 years,

plant a tree. If for a hundred years, teach the people. When you sow a seed once, you will reap a single harvest. When you teach the people, you will reap a hundred harvests.”

We need to plant those seeds of education and tend those young saplings, in our public schools.



In 1835, the Supreme Court Justice Joseph Story wrote:

“Every successive generation becomes a living memorial of our public schools, and a living example of their excellence.”

Ensuring that our schools are a living example of excellence will take more than just money. But ensuring that our schools are a living

example of excellence will take money, as well.

We need to ensure that children can come to school ready to learn. We need to ensure that children have modern and well-equipped schools. We need to ensure that children have small classes. And most importantly, we need to ensure that children have good teachers.

In the next decade, America will need to hire 2 million new teachers. One in five new teachers leave teaching within three years. In urban schools, half of teachers leave the profession within 5 years.

Nearly two out of five low-income children are taught by teachers without a college degree in their primary instructional field. Low-income students are taught by more teacher’s aides than credentialed classroom teachers. Four out of five aides do not have a 4-year college degree.

Columnist Tom Friedman wrote recently:

“We are heading into an age in which jobs are likely to be invented and made obsolete faster and faster. The chances of today’s college kids working in the same jobs for the same companies for their whole careers are about zero. In such an age, the greatest survival skill you can have is the ability to learn how to

learn. The best way to learn how to learn is to love to learn, and the best way to love to learn is to have great teachers who inspire. And the best way to ensure that we have teachers who inspire their students is if we recognize and reward those who clearly have done so.”

We need to give good teachers the recognition that they deserve. Friedman told how every year, Williams College honors four high school teachers who made a difference. Every year, members of its senior class nominate their best high school teachers. A committee at Williams then goes through the nominations, does its own research, and chooses the four most inspiring teachers.

Williams gives each of the teachers \$2,000, plus a \$1,000 donation to the teacher’s high school. And Williams flies the winners and their families to the college to honor them at graduation.

Williams’s president, Morton Shapiro, told Friedman: “We take these teachers, who are not well compensated and often underappreciated, and give them a great weekend.”

Said Shapiro: “Every time we do this, one of the teachers says to me, ‘This is one of the great weekends of my life.’”

It’s a great idea.

Each of us can do our part. I have started a program that will recognize Montana teachers acknowledged for excellence. This is something that all Senators can do in their home States. A little recognition can go a long way.



But if knowledge is power, then we must also devote the resources necessary to maintain that power.

Columnist Matt Miller argues: “The answer is to think bigger.” He suggests that we make the best teachers millionaires by the time that they retire.

Miller proposes a “grand bargain” where we raise salaries for teachers in poor schools by 50 percent. And in return, teachers would agree to change their pay scale so that we could raise the top performers and those in math and science another 50 percent.

Miller, who used to work at the Office of Management and Budget, calculates that his plan would cost about \$30 billion a year. That would provide a 7 percent increase in the nation’s K-through-12 spending.

International Comparison of Math, Reading, and Science Skills Among 15-Year-Olds								
Mathematics			Reading			Science		
Hong Kong (China)	1		Finland	1		Finland	1	
Finland	2		South Korea	2		Japan	2	
South Korea	3		Canada	3		Hong Kong (China)	3	
Japan	6		Australia	4		South Korea	4	
Canada	7		Ireland	7		Australia	6	
Australia	11		Sweden	8		Canada	11	
France	16		Hong Kong (China)	10		France	13	
Sweden	17		Japan	14		Sweden	15	
Germany	19		Poland	16		Ireland	16	
Ireland	20		France	17		Germany	18	
Poland	24		United States	18		Poland	19	
United States	28		Germany	21		United States	22	
Russian Federation	29		Italy	29		Russian Federation	24	
Italy	31		Russian Federation	32		Italy	27	
Mexico	37		Brazil	37		Mexico	37	
Brazil	40		Mexico	38		Brazil	39	

I ask my colleagues: Why don't we invest \$30 billion for top teachers, and pay for it by closing abusive tax shelters?

And we need to help students to learn math and science. Companies are moving jobs offshore to China, India, and Eastern Europe not only because workers there work for less, but also because they are well educated in math and science.

Sadly, American high school students now perform below most of the world on international math and science tests. Most have little interest in pursuing scientific fields. Only 5.5 percent of the high school seniors

who took the college entrance exam in 2002 planned to pursue an engineering degree. We have to do more to encourage students to love to learn math and science.

And we need to help students to learn geography and languages. Visit a primary school in a middle-sized Chinese city. Bright, enthusiastic children will greet you in English. Chinese schools are preparing students to compete in a multinational, multilingual world economy. The coming generation of Chinese businesspeople will do business around the world. Americans need to broaden our linguistic and geographic abilities, or Chinese businesspeople

will cut the deals before us. As our former Colleague Bill Bradley said in 1988, “If we are going to lead the world, we have to know where it is.”

And after school, almost 6 million latch-key children go without access to after-school learning opportunities. More than seven in ten mothers of children under 18 are in the workforce. America can no longer afford a school day based on 1950s family structures. Quality after-school programs can both keep children safe and improve academic achievement. We need to ensure that children have quality after-school programs.

Similarly, we continue to have a school year that reflects the harvest schedule of an agrarian economy that America long ago left behind. Long summer vacations mean reading levels drop and other learning is lost.

Schools like Des Moines’s Downtown School point to another way. They have a six-week summer break. And that means less time to forget. Besides six weeks in the summer, students also have week-long breaks in October, February, and May.

Jan Drees, the principal of the Downtown School, says: “The research is becoming more and more clear that students retain more learning and need less review with shorter summer breaks.”

The Downtown school is popular, too. More than 800 children are on a waiting list to get into the school.

Iowa law requires schools to provide a minimum of 180 instructional days a year. But the Downtown School teaches students for 192 days a year. They are getting more learning in, every year. For Americans to stay smarter, students should spend more of the school year in school.

China’s increasing competitive strength is also fueled by its growing population of college graduates. Last year, nearly 3 million Chinese entered the workforce from 3- and 4-year colleges and graduate programs. This is one-third more than the year before, and double the year before that.



America’s college system is the finest in the world. And the work of the 21st century increasing demands good college education. But rising college costs increasingly bar Americans from getting the college education for which they are qualified.

We must make college affordable for all. We need to ensure that young Americans are not discouraged from obtaining post-secondary education

because of costs. Tuition costs have risen considerably in recent years. And federal assistance programs have not kept pace.

Pell Grants help to make college education affordable for 5 million students, a third of American undergraduates. But students receive grants averaging just \$2,500 a year, while the average annual cost of tuition at a public college in-state averages more than \$9,000 a year, and private college averages more than \$23,000 a year. The most that a student can get in Pell Grants is \$4,050 a year. Expanding Pell Grants would increase the ability of low-income young Americans to prepare for the 21st century.

As well, we should improve, consolidate, and expand the government's education tax incentives to make them more effective. We could expand and extend the deduction for tuition expenses. We could expand the Hope and Lifetime Learning credits. We could craft targeted incentives for students pursuing science and engineering careers. We could do more to make it possible for non-traditional students to obtain an education. There are many good options.

As with elementary school students, we need to help encourage college students to learn the subjects needed in the 21st century.

In 1975, America ranked third in the world in the share of 24-year-olds who held a science or engineering

degree. By 2000, we had slipped to 15th. By 2004, we were 17th. And in the future, the Department of Labor projects that new jobs requiring science, engineering, and technical training will increase four times faster than the average national job growth rate.

Last year, China produced 220,000 new engineers, while America educated just 60,000. And America trains only half as many engineers as Japan and Europe.

In a recent report, McKinsey Global Institute found that there are already twice as many young university-trained professionals in low-wage countries as in high-wage countries. China has twice as many young engineers as America.

Engineers play a critical role in the development of new jobs and new industries. We should increase scholarships and loan forgiveness for engineering students to entice more people to love to learn engineering.

At that Shanghai factory, American and Japanese research and development stand behind many of the products being built. But ask the American or Japanese company their plans, and they will tell you that they plan to move R&D work closer to the plant, there in China. And Shanghai's government hopes to lure more R&D to town. Chinese business understands that innovation is the source of American value-added.

And they want part of that action, too.

Clive Cookson reported in the *Financial Times* about a bioscience park outside Beijing. A firm there called CapitalBio is emerging as a world leader in the new technology of biochips. Biochips are cutting-edge devices that combine biotechnology and electronics for biological testing and medical diagnostics. The 4-year-old company is already selling instruments to American drug companies.

Last month, CapitalBio entered into a partnership with Affymetrix in California, the world's largest biochip producer. CapitalBio's chief executive said: "Affymetrix had never imagined that there was such a big research effort in biochips in China, working to such a high standard."

Dozens of similar examples exist. Already, several Asian countries boast of such science and technology centers. They are following in Japan's wake as world-class centers for research and development.

Asia's R&D investment and scientific output have both surged rapidly. Between 1998 and 2003, China's research and development spending roughly tripled.

You can judge a scientific paper's effect by how often other researchers cite it. The number of frequently-cited Chinese research papers has risen from just 21 in 1994 to 223 in

2003. And China's contribution to the world's scientific journals has increased from less than half a percent in 1981 to more than 5 percent in 2003.

And Chinese researchers will do research for less cost. Newly-graduated researchers in China generally earn about a quarter of what Americans do. For more senior staff, salaries are usually at least half American salaries. And in exceptional cases, they can sometimes exceed ours.



Beijing

Chinese scientists who have returned after studying and working in the west are playing an important role. In Beijing, CapitalBio's CEO said that he "made a special effort at the beginning to attract [Chinese expatriates] from abroad, with salary and stock options. We offered at least to match the salaries that senior scientists were receiving; the highest we offered was \$120,000 a year," he said.

So far, Asia has been able to make a global mark only in a few new areas

of the life sciences where western expertise is not entrenched. Stem cell technology is an example. South Korea, China, Singapore, and India are racing ahead on stem cell research. Those countries accept human embryo research in a way that the American government has not.

But America still has an advantage in innovation. And America also benefits from a risk-taking entrepreneurial culture. You can see it in the venture capital that funds companies spun out of American research laboratories or universities. America's capital markets remain the envy of the world.

We can help to maintain that edge in innovation by supporting research. American universities and research institutes do much of the most innovative research in the world.

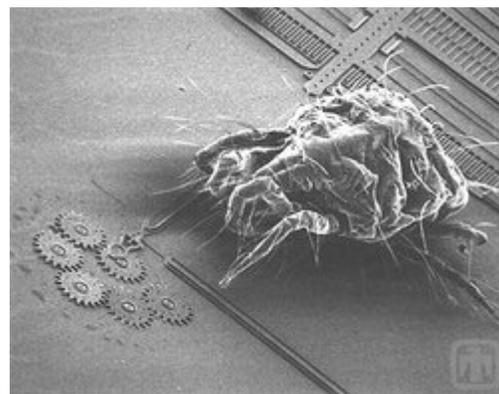
But over the last 20 years, Federal research funding in the physical sciences and engineering has declined by nearly a third as a share of the economy.

We should reverse this trend and increase Federal spending on basic research. The money we spend will come back to us many times over in the creation of new jobs in new industries making products yet to be invented.

We should support the National Science Foundation. The NSF funds research and education in science and engineering through a variety of suc-

cessful programs. It accounts for a fifth of all Federal support to academic institutions for basic research, a crucial engine of innovation.

NSF funds have helped discover new technologies that have led to multi-billion dollar industries and millions of new jobs. NSF-funded work in the basic sciences and engineering made possible fiber optics, radar, wireless communication, nanotechnology, plant genomics, magnetic resonance imaging, ultrasound, and the Internet.



a mite next to a gear set produced using MEMS, the precursor to nanotechnology

Courtesy Sandia National Laboratories, SUMMiTTM Technologies,
www.mems.sandia.gov

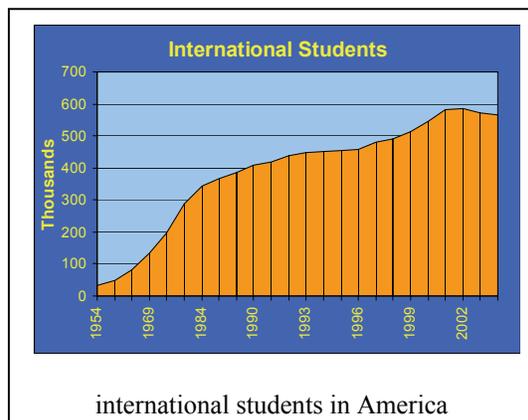
Each year, the NSF helps fund over 200,000 students, teachers, and researchers. Many of them take their NSF-supported work into industry. They found start-up companies selling new products and new technologies.

In addition, we should make it easier — consistent with the requirements of national security — for foreign students to study in America.

America has traditionally poached many of the best and brightest students from around the globe. Well over a third of American science and engineering doctorate holders were born abroad.

Since 9/11, however, many students are having a difficult time getting visas to study in America. In 2004, foreign applications to American graduate schools declined by 28 percent. Enrollments of foreign students at all levels of college declined for the first time in 30 years.

Foreign students are increasingly studying in Europe and elsewhere. That is a terrible loss. It will affect our economic health in the long-term. We need to do a better job balancing security and economic health.



America must not compromise on its security needs in hosting foreign businesspeople or foreign students. But there must be ways to streamline visa procedures and otherwise lighten the burden. We need to make it easier for foreigners to study and conduct business in America.

We should support community colleges, and strengthen the link between them and the workforce. That will allow schools to develop training programs relevant to jobs in the real world. That is a primary goal of the Dole-Baucus Higher Education Access, Affordability and Opportunity Act (S. 1068).

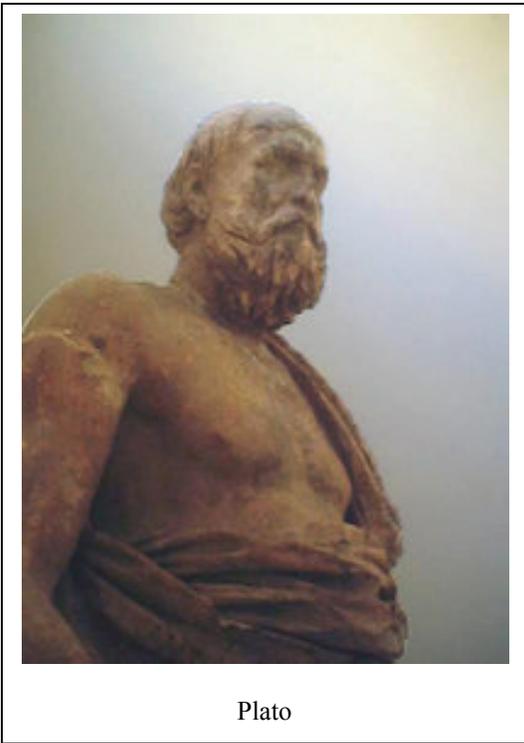
And when American jobs are lost to trade, we need to retrain people and help them to get back into the workforce. The philosopher and educator John Dewey said, “Education is not preparation for life; education is life itself.” We can no longer afford to think of education as something just for the young.

We need to help displaced workers to receive the retraining that they need to succeed in a changing economy. Jobs will change. We should help workers to get the educational tools to change with those jobs.

That is why I joined with Senators Wyden and Coleman to introduce legislation to expand Trade Adjustment Assistance to service workers who lose their jobs because of trade. TAA is a vital means of helping displaced workers get the education to change careers and stay productive.

When Plato envisioned the ideal society in his work *The Laws*, he wrote of the importance of education, through the course of life. He wrote:

[N]owhere should education be dishonored, as it is first among the noblest things for the best men. If it ever goes astray, and if it is possible to set it right, everyone ought always to do so as much as he can, throughout the whole of life.



And so, through advancing education, America can compete with that factory in Shanghai. Through advancing education, America can respond to competition, without erecting harmful barriers to trade. And through advancing education, America can respond to a growing China, without forcing confrontation with China.

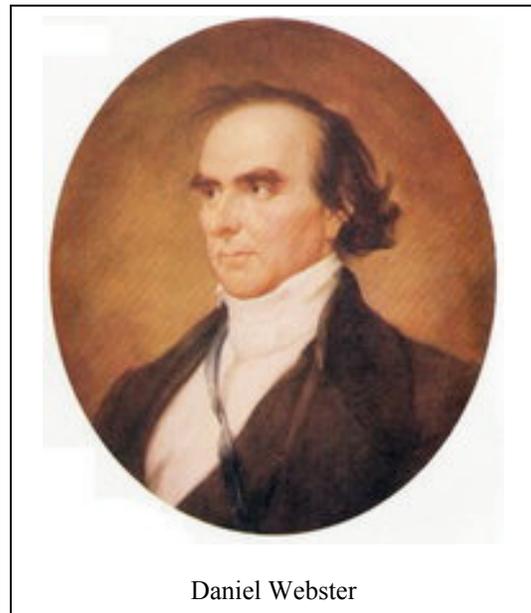
University of California economist Brad DeLong wrote of the choice that we face in how we ad-

dress the challenge of China. He wrote:

“A world 60 years from now in which Chinese schoolchildren are taught that the U.S. did what it could to speed their economic growth is a much safer world for my great-grandchildren than a world in which Chinese schoolchildren are taught that the U.S. did all it could to keep China poor.”

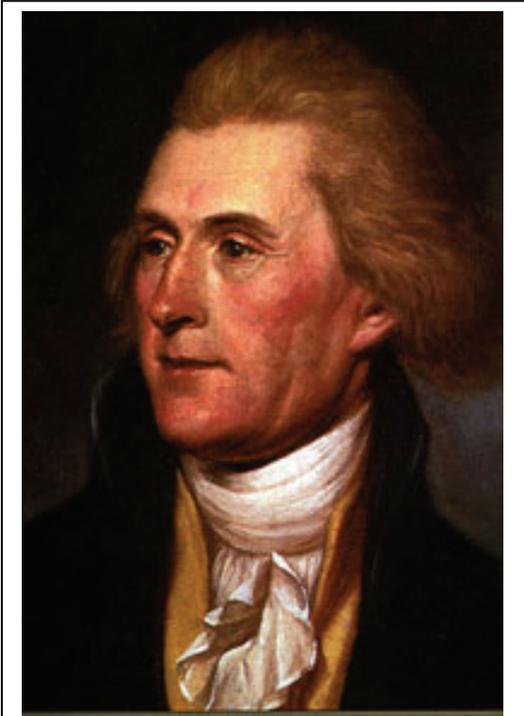
Through advancing education, America can seek that safer world.

But perhaps most importantly, America should seek to advance education not just to preserve our economy, but also to preserve our freedom.



As Senator Daniel Webster said in a speech in 1837, “On the diffusion of education among the people rest

the preservation and perpetuation of our free institutions.”



Thomas Jefferson

As Thomas Jefferson wrote in 1816, “If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be.”

And as the Phrygian philosopher Epictetus said, “Only the educated are free.”

And so, let us advance education to preserve our economic power.

Let us advance education to win the race for economic leadership.

And most importantly, let us advance education to help preserve our American democracy.

151 CONG. REC. S7414-17 (daily ed. June 27, 2005).

Voyages of Trade and Discovery

Originally delivered July 19, 2005

Six hundred years ago this month, a great fleet of more than 300 ships lifted anchor at Nanjing, China, on the first of seven voyages of trade and discovery. The Chinese fleet counted the largest wooden ships ever built, some with nine masts, massive keels of teak, and decks 400 feet long — if you can imagine, longer than a football field.

The Ming Emperor gave his nearly seven-foot-tall admiral orders to sail on July 11, 1405, nearly a century before Christopher Columbus and Vasco da Gama left Europe. And all of those European explorers' ships could have fit on a single deck of one of the Chinese treasure ships. The 36-foot rudder of one of the ships stood almost as tall as Columbus' flagship, the *Nina*, was long.



Admiral Zheng He of the Ming Fleet

The Ming fleet carried a crew of nearly 28,000, with a medical officer for every 150 souls on board. The fleets carried more than a million tons of silk, porcelain, copper coins, and spices to trade for the riches of the world, on to what the Chinese called the Western Ocean — what we call the Indian Ocean. They reached Sumatra, Ceylon, and India. They went to the Arabian Peninsula and Africa's Swahili coast. They made a side trip to Mecca.

At each port, ships with colorful prows delivered platoons of Chinese merchants, ready to do business. In Siam — now Thailand — they acquired sandalwood, peacocks, and cardamom. In Indonesia, they acquired tin. In Oman, they traded porcelain for frankincense, myrrh, and aloe. The Sultan of Aden gave them zebras, lions, and ostriches. In east Africa, they acquired a giraffe.

In 1451, one of the fleet's interpreters would write a memoir of the voyages, exclaiming: "How could there be such diversity in the world?"

In Sri Lanka, the admiral engraved a granite slab in Chinese, Tamil, and Persian, seeking blessing from Buddha, Siva, and Allah alike.

In the south Chinese harbor of Changle, the admiral inscribed on a pillar: "[We] have recorded the years and months of the voyages . . . in order to leave [the memory] forever."

He listed his destinations, "altogether more than 30 countries large and small."



He wrote of his efforts "to manifest the transforming power of virtue and to treat distant people with kindness."

He wrote: "We have traversed more than 100,000 li" — that is, 40,000 miles — "of immense water spaces and have beheld in the oceans huge waves like mountains rising sky-high, and we have set eyes on . . . regions far away hidden in a blue transparency of light vapors."

Today, approximately 600 years later, Chinese officials will proudly

recall the voyages of the Ming fleet. They will observe that Ming China amassed one of the most powerful naval forces ever assembled, and they will pointedly note that China used the fleet not for conquest but for business and exploration, trade and diplomacy.

Three weeks ago, on June 24, 2005, a fleet of Chinese-made cars began rolling onto a ship in Guangzhou, China, bound for Europe. The fleet counted cars made at a gleaming new Honda factory on the outskirts of the sprawling city of 12 million souls near Hong Kong.

As reporter Keith Bradsher of the *New York Times* described:

“At the new Honda factory . . . white robots poke and crane their long, vulture-like heads into gray, half-completed car bodies to perform 2,100 of the 3,000 welds needed to assemble each car. Workers in white uniforms and gray caps complete the rest of the welds, working as quickly as workers in American factories — but earning roughly \$1.50 an hour in wages and benefits, compared to the \$55 an hour for General Motors and Ford factories in the United States.”

In America, General Motors and Ford struggle to pay high health-care costs for autoworkers with an average

age of nearly 50. In China, most of Honda’s autoworkers are in their twenties. They do not go to the doctor much, and when they do, Chinese doctors charge less than \$5 for an office visit and a few stitches.

China’s manufacturing companies are rapidly building wealth, and they have begun to trade that wealth for the riches of the world, across the Pacific Ocean.

At airports throughout the world, airplanes with colorful tail wings deliver platoons of Chinese merchants, ready to do business. In May, the Chinese company Lenovo acquired the personal computer division of IBM. In June, a Chinese company bid \$2.25 billion for the Iowa-based appliance company Maytag. Also in June, China National Offshore Oil Corporation bid \$18.5 billion for Los Angeles-based Unocal, whose “76” marketing symbol is one of the most recognized and enduring corporate symbols in America. And all this buying pales next to the acquisition by China’s central bank of \$230 billion of American Government debt.

China is pursuing trade agreements with India, Australia, New Zealand, and Thailand. China is reaching out to the 10 countries of the Association of Southeast Asian Nations, known as ASEAN.

The Chinese are visiting the rest of Asia in greater numbers than before. They bring with them money and optimism about the “new China.”

The new China has gleaming skyscrapers, modern, productive industries, and a rapidly developing infrastructure.

China has launched a major charm offensive across Asia to promote itself as a desirable place to visit, to invest, and to live. Through ventures such as China Radio International, worldwide television broadcasts, and Chinese language and cultural centers across Asia, China advertises itself as an attractive destination. Increasingly, Asians are forgoing trips to Los Angeles, traveling to Beijing instead. For many young Asians, the gleaming lights of Shanghai illuminate the new Manhattan.



Already 90 million people in China's coastal cities have access to the Internet, and the Chinese own more cell phones than any other people in the world. There are more cell phones in China than there are people in the United States.

China has the world's largest population, the fastest growing econ-

omy, the second largest foreign currency reserves, and the third largest trade. China creates one-fifth of world trade growth.

In 2004, America exported 2½ times more to China than it did in 1999, 5 years earlier. My State of Montana exported 11½ times more. But America's merchandise trade deficit with China has more than doubled in the same time. China accounted for a quarter of America's \$652 billion trade deficit last year.

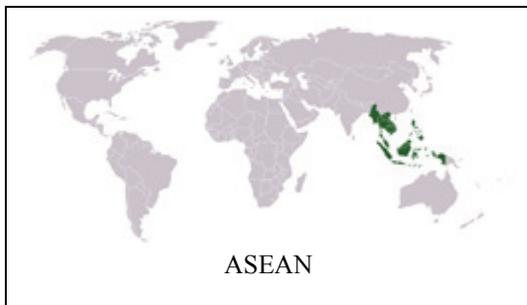
As Tom Friedman writes in his book, *The World Is Flat*, which I recommend for everyone:

“[W]hat is really scary is that China is not attracting so much global investment by simply racing everyone to the bottom. . . . China's long-term strategy is to outrace America and the EU countries to the top, and the Chinese are off to a good start.”

China is amassing one of the most powerful economies ever assembled. So America must ask: Will the result be as benign as the voyages of the Ming treasure fleet 600 years ago?

Asia accounts for one-third of the world economy. It is the world's most economically dynamic region. And America needs to pay attention. This administration has launched 20 free-trade agreements, but only one has been in Asia — with Thailand.

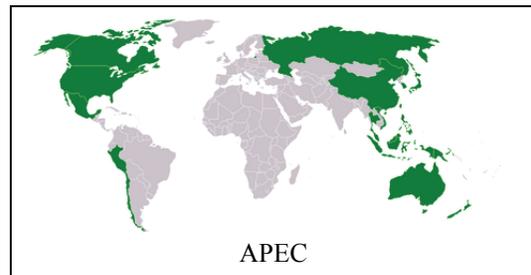
Instead of embracing ASEAN, this administration has largely ignored it. The Government has ceded the initiative in Southeast Asia to China. That is how ASEAN views the recent decisions of Secretary of State Rice to skip an important ASEAN gathering later this month. U.S. Secretaries of State have traditionally attended that conference. And this administration has failed to use the Asia Pacific Economic Cooperation, otherwise known as APEC, as a platform for trade integration. Rather, this administration has turned the organization into little more than a venue to discuss security options.



Since 2000, this administration has negotiated bilateral and regional trade agreements at a furious pace, but most of the agreements the Government has been negotiating offer little real value to America's commercial interests. Why? Because the Government is choosing trading partners more for foreign policy reasons than it is for commercial reasons.

The U.S. Trade Representative has finite resources. To be effective, to deliver the greatest benefits to Americans, our Government must direct their efforts where they are

most likely to have the greatest effects.



In 1962, Congress created the Special Trade Representative — the predecessor of the U.S. Trade Representative — to remove trade policy from the State Department precisely so that commercial interests rather than foreign policy interests would drive American trade policy. I don't think that has happened. I believe trade shots are called by the White House.

We must focus trade policy efforts where they promise the greatest return for our ranchers, businesses, and our workers. First and foremost, we need to devote more effort to the ongoing Doha round of WTO negotiations. From all appearances, the negotiations are dragging. The pace of progress will have to improve considerably to meet the goal of an agreement by the end of 2006, and that will require a substantial commitment of U.S. leadership and resources.

We need to look more to Asia for bilateral agreements as well. For example, South Korea is our seventh largest trading partner, with a two-way trade totaling \$70 billion. Korea

has promised real reforms in its agricultural markets. It has liberalized investment restrictions and lowered merchandise tariffs. I have met with Korean trade officials on several occasions, and they are serious about reforms.

Regional trade agreements in Asia, perhaps under the auspices of APEC, also hold promise. APEC's 21 member economies account for a third of the world's population and about three-fifths of world production. American exporters will get a major boost from a regional free-trade agreement on this scale.

We also need to seek out further sectoral agreements such as the WTO's hugely successful Information Technology Agreement negotiated largely by America, Japan, and Singapore.

We should launch an initiative in the advanced medical equipment sector. Asia has a rapidly aging population, particularly in Japan, Korea, and China. This demographic shift translates into growing demand for advanced medical equipment. America already exports half a billion dollars a year in medical devices to China and Hong Kong, and these exports are expanding 12 percent a year.

We need to do a better job of enforcing our existing trade agreements.

In China, piracy — the theft of American copyrights and patents — is at epidemic levels. In the past 2

years, companies from General Motors to Sony to Cisco have complained that Chinese have stolen their intellectual property. More than 90 percent of software in China is stolen. American innovators are losing billions of dollars a year.

Combating piracy would help the American economy far more than further agreements with countries whose entire economies are but a fraction the size of our losses to piracy alone. I need only mention CAFTA. CAFTA is a blip compared to other commercial interests we should be pursuing.



China also maintains a troubling currency peg. But retaliatory tariffs are not the answer. Tariffs would violate our WTO commitments. Tariffs would inflame already difficult trade relations with China, invite Chinese retaliation in other areas, and make Chinese imports nearly a third more expensive. Tariffs would hurt American consumers who would pay more for many of the goods that they buy. And tariffs would hurt U.S. companies who rely on Chinese inputs to develop their own products.

Having said that, China's currency peg is a problem. It distorts world markets and hurts both America and China itself. China needs to revise its currency policy.

While issues with China dominate the headlines, there are other enforcement priorities, including in our own hemisphere. In Brazil, for example, the government recently forced an American pharmaceutical company to reduce its price for one of its medicines. It did so by threatening to break its promise to protect the American company's patent, and to let a state-owned company make generic copies of the medicine, an outrage.

This is blackmail, pure and simple. And it is illegal. This sort of coercion has no place in our trade relations. It hurts our companies and our workers. And it dampens the incentive to create new and innovative pharmaceuticals.

Our problems with Brazil go beyond just pharmaceuticals. Until recently, Brazil banned the sale of genetically engineered seeds for use in agriculture. These are the kind of high-tech seeds American companies like Monsanto and Pioneer Hi-Bred develop and sell all over the world — but not in Brazil. How odd then, that roughly 30 percent of Brazil's soybeans are grown with genetically engineered seeds. The figure is nearly 90 percent in Brazil's southernmost state of Rio Grande do Sul.

How can this be? Theft. These seeds were smuggled in from neighboring countries where they are allowed, and planted illegally. They were not purchased. They were stolen.



And just like piracy in China, piracy in Brazil costs American industries dearly. Last year, American companies lost \$930 million in Brazil because of piracy of audiovisual goods. Some estimate that three-quarters of the audiocassettes sold in Brazil are pirated.

Of course we cannot launch a full-fledged WTO dispute to address each and every foreign trade barrier. And the U.S. Trade Representative often rightly attempts to resolve many of these issues through negotiation and other means.

But there can be little doubt that trade enforcement has received a lower priority of late. In the 6 years

from 1995 through 2000, the United States filed 67 WTO dispute settlement cases. In the 5 years since, we have filed only 12. That is about an 80 percent decrease.

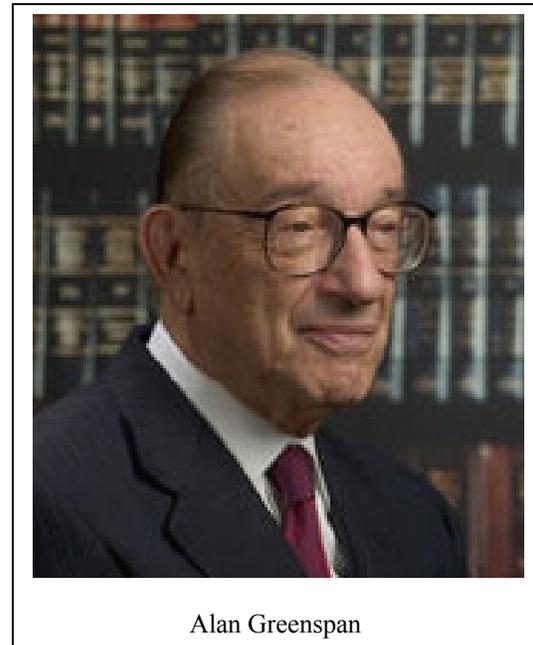
Too often, our tools to address trade barriers are lying unused, on the shelf. That burdens Americans with economic losses. But what is more, when Americans see that others are cheating, their enthusiasm for trade cools. And we all suffer as a result.

Americans are also cool to trade when they see nothing being done to help those who lose from trade. Lowering tariffs and barriers increases competition and benefits many more than it hurts, but it inevitably hurts some.

For more than 40 years, the Government has been helping to retrain workers affected by trade to give them the skills that they need to find new jobs. These programs were expanded in 2002 under the Trade Adjustment Assistance Reform Act, a bipartisan effort and one of my proudest achievements as chairman of the Finance Committee at that time. The reforms expanded eligibility to new categories of workers, created a new health coverage tax credit, and helped older workers with a new wage insurance benefit. Last year, these programs helped nearly 150,000 workers.

TAA is an integral part of a successful trade policy. A few weeks ago, I discussed this very issue with

Federal Reserve Chairman Alan Greenspan during a Finance Committee hearing. Chairman Greenspan stated, as he has before, that our trade policy should “assist those who are on the wrong side of the adjustment” caused by trade.



Lately, the Government has not supported TAA. This year, the administration’s budget zeroed out funding for the TAA for Firms Program, which pretty much everyone agrees has been useful and cost effective. Last month, the Senate Finance Committee passed an amendment offered by my colleague from Oregon, Senator Ron Wyden, to extend TAA benefits to workers in the service industry. The administration stripped the language out of the CAFTA implementing bill that it submitted to the Congress.

Liberalizing trade requires a grand bargain with workers. Workers agree

to be exposed to increased international competition. It is helpful. But society agrees to erect a strong social safety net to help workers adjust.

When workers' old skills become obsolete, society helps them learn new skills to compete. If we undercut this bargain, we do so at the peril of further trade liberalization and our international competitiveness.

We must press forward with trade liberalization. For, 600 years later, international trade remains as vital to the world economy today as it was to Ming China.

Trade allows Americans to specialize in what we do best. That allows us to improve our international competitiveness and maximize our standard of living.

What Americans do best today is manufacture capital-intensive goods: airplanes, automobiles, and construction equipment.

Americans invent whole new fields, like biotech and nanotechnology, that lead to new products to make our lives better. University of Michigan scientists recently used nanotechnology to deliver a powerful drug inside cancerous tumor cells, increasing the drug's cancer-killing activity and reducing its toxic side effects.

Americans pioneer new services to make our lives better, like Internet banking. We export our services all

over the world. Hollywood movies and American television programs are translated into countless languages and watched around the world. American universities educate students from virtually every country on Earth. American insurance companies insure assets in jungles, deserts, and savannas.

And American ranchers and farmers feed and clothe people around the globe.

Freer trade helps us find and open new markets for what Americans do best. New markets provide new opportunities for American workers and their companies. New markets mean greater demand for what Americans produce. And new markets mean more jobs and more investment opportunities to meet the demand.



As we meet the demand of foreign consumers through trade, American products become global products. American brands become global brands. Coke is Coke, the world over.



I might digress and say 40 years ago I hitchhiked around the world with a knapsack on my back. In northern Ghana, I went to a little hut. I got off from the back of a truck. I was riding with the cattle in the back of the truck. My driver stopped to pray. He pointed his little prayer mat toward Mecca. In that little hut there was a little refrigerator, no electricity, and there was Coca-Cola. It was a world brand back then. Just think of all the world brands we could have today.

On today's voyages, one can find the familiar yellow arches of McDonald's in Cyprus, Slovenia, and Oman.

The American standard becomes the global standard and the international sign of excellence. Excellence means that half of the world's 20 largest companies are American companies — companies like Citigroup, IBM, and General Electric.

Importing products from our trading partners challenges domestic companies to compete. Competition keeps American companies nimble. American companies are constantly coming up with new products and better ways to make them.

Just look at the number of U.S. patents filed by Americans versus the rest of the world. Americans filed nearly 90,000 patents in 2003. That is 50,000 more than the next most innovative country, Japan. In innovation, we are still number one.



Tokyo McDonald's

The biggest payoff from international trade goes to the American consumer. As more and more companies trade and produce what they are best at producing, prices in supermarkets and department stores

plummet. Cheaper products mean that we can afford more of what we need, and our standard of living improves.



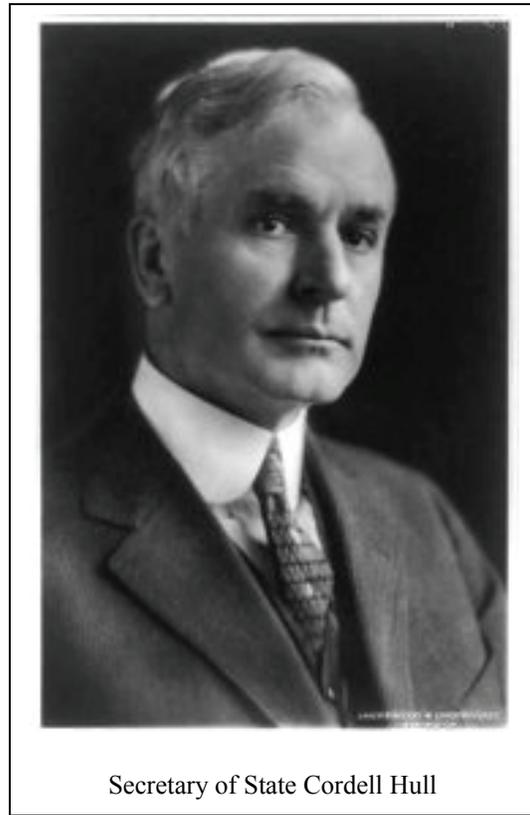
The now-ubiquitous cell phone provides a great example. Ten years ago, it was an unaffordable luxury for most Americans. Using one in public aroused curiosity. But trade forced prices to drop. Now many Americans see cell phones as a necessity.

Leaders have not always appreciated the benefits of trade. After the stock market crash in 1929, America enacted the Tariff Act of 1930. That act imposed the now-infamous Smoot-Hawley tariffs that deepened the Great Depression.

During the Presidential campaign of 1932, President Hoover warned that repealing the Smoot-Hawley tariffs would devastate the U.S. economy. Why? Because, he said, Americans could not compete successfully with workers in poorer countries with lower wages and lower costs of production. It was Franklin Roosevelt who argued that worldwide reduction of trade barriers would

benefit both America and its trading partners.

Roosevelt's victory, along with his signing of the Reciprocal Trade Agreements Act, ushered in the modern era of American trade policy.



Secretary of State Cordell Hull

During World War II, Secretary of State Cordell Hull argued that economic protectionism had fed the animosities that led to the war. He advocated freer trade in the postwar era as a bulwark for peace and prosperity.

This vision led to the General Agreement on Tariffs and Trade, otherwise known as GATT, negotiated during the Truman administration. This forerunner to today's World Trade Organization brought down the

disastrously high Smoot-Hawley tariffs and freed \$10 billion of trade from duties.

Democrats can be proud of our role in expanding free trade. Democratic administrations completed and implemented the last three rounds of GATT negotiations. In 1967, the Johnson administration completed the Kennedy Round. In 1979, the Carter administration completed the Tokyo Round. In 1994, the Clinton administration completed the Uruguay Round.



Bill Clinton

The Clinton administration completed the North American Free Trade Agreement, negotiated the historic bilateral trade agreement with Vietnam, and granted permanent normal trade relations to China, ultimately paving the way for China's membership in the WTO.

The success of trade liberalization has been spectacular, touching the lives and well-being of all Americans. Freer trade has lowered our tariffs from about 40 percent in 1946 to about 4 percent today, and made our trading partners do the same. Freer trade has increased our national income by nearly \$1 trillion a year. Freer trade has increased the average American household's income by nearly \$10,000 a year. Freer trade with China alone saves American households \$600 each year.

Today, 12 million Americans, 1 of every 10 workers, depend on exports for their jobs. International trade now accounts for a quarter of our gross domestic product, up from just 10 percent in the 1950s.

Trade opens our lives to new opportunities and choices. Trade gives us new foods to eat, new movies to watch, and new products to buy.

Strengthening trade ties also contributes to peaceful relations with our trading partners. Our quality of life improves as the world grows ever smaller, shrinking with the better communications and transportation links that develop with increased commerce.

Back in China, Guangzhou Airport has a terminal designed by an American company, boarding gates supplied by a Danish company, and an air traffic control tower engineered by a company from Singapore.

America's Dell Computers is giving the Chinese competitor Lenovo a run for its money in China. Dell now has become China's third-largest seller of PCs, and Dell now produces 3 million PCs in China, as many as Lenovo.

America should welcome China's greater integration into the world market. It may mean that we will have to work a little harder, study a little bit harder, and think a little bit quicker to keep ahead. But those are talents at which Americans excel.

In the middle of the 15th century, China made an abrupt change in foreign policy. Remember just earlier all those ships around the world? China turned inward and abandoned outward-looking trade. Imperial edicts banned overseas travel. To reduce commerce with foreign nations, the new Chinese dynasty burned a swath of land 30 miles deep for 700 miles of its southern coast. Any merchant caught engaging in foreign trade was tried as a pirate and executed.

With the Emperor's death in 1435, the government put a stop to the voyages of the Treasure fleet. Chinese court officials destroyed the plans for the Treasure ships, the accounts of their voyages, and almost every map and document of the previous period. Sadly, China's golden Ming age came to an end, China's economy fell backward, and the

treasure ships became shrouded in the mists of history.

We cannot yet know whether the voyages of today's fleets of Chinese ships will lead to another golden age for China like that of the Ming Dynasty. But we also cannot expect that China will somehow once again abruptly reverse course and turn inward. That will not happen.

Try as regimes after the Ming dynasty did, they could not erase the history of the Ming treasure fleets, whose voyages will leave a memory forever.

Let us respond to today's Chinese fleets with the best spirit of the Ming admiral, and the best spirit of America.

Let us work to advance freer trade, so that for America and for China, we can, in the words of the Ming admiral, "manifest the transforming power of virtue."

Let us work to advance freer trade, to make a better world both for ourselves, and for "regions far away hidden in a blue transparency of light vapors."

And let us work to advance freer trade, because both in terms of new innovations and new trading partners, America's greatest voyages of discovery still lie ahead of her.

*151 CONG. REC. S8442-45 (daily ed.
July 19, 2005).*

Health Care and Competitiveness

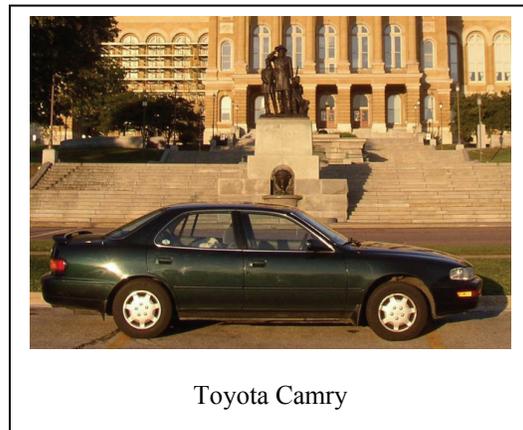
Originally delivered July 27, 2005

Every few minutes, a new Chevy Malibu, a popular family sedan, rolls off the assembly line of General Motors Corporation's Fairfax plant Kansas City, KS. The invoice price starts at \$17,600.

And every few minutes, across the ocean, a new Toyota Camry, a popular family sedan, rolls off the assembly line of the Toyota Motor Corporation plant in near Nagoya, Japan. The invoice price starts at about \$16,600, a full \$1,000 less than the Malibu.

One reason for the price difference between the Malibu and the Camry is health care. Yes, health care. For GM, health-care costs amount to more than \$1,500 for every vehicle it produces. For Toyota,

health-care costs account for closer to \$500 for every vehicle that it produces. That is about the thousand dollars difference.

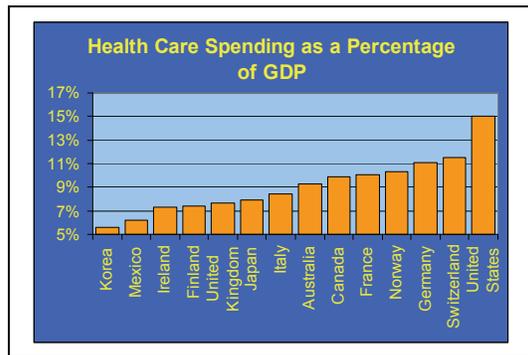


Two-thirds of Americans get their health insurance at their jobs. The system started in World War II, when the Government capped wages. Employers competed for workers by of-

fering more generous fringe benefits. After the war, a Government tax preference further encouraged employers to provide health insurance.

Almost all Japanese get their health insurance through their government. That is true of pretty much every other major industrialized country.

America's system has yielded high health-care costs. The average American spends more than \$5,000 a year on health care. That is 53 percent more than the next most costly country. The average Japanese spends only about \$2,000 a year on health care.



Last year, GM paid \$3.6 billion in health-care costs for about 450,000 retirees and their spouses. When GM workers retire, GM continues to pay much of their health-care costs as part of the worker retiree benefits plan.

This year, 1,200 Japanese Toyota employees will retire. Within 2 years, pretty much every one of them will switch from Toyota's health insurance plan to the Japanese national plan. At that point, Toyota will pay

absolutely nothing in health-care costs for those 1,200 retirees and their spouses.

General Motors provides more medical benefits than any other private entity. GM covers 1.1 million Americans, including workers, retirees, and their families. Last year, GM paid for more than 11 million prescriptions for its hourly workers.

Premiums for health insurance have increased 15 percent or more in many years. GM expects that its health-care bill will go up \$1 billion this year, to \$6.2 billion total. That is a year. Last year, GM spent \$1.4 billion on prescription drugs alone. Last year, GM put \$9 billion into a trust fund to pay for health-care costs.

Remember, when those retirees leave Toyota, they do not cover the health-care costs. The government does it in Japan.

In the late 1970s, GM controlled nearly half of the American car market. Since then, competitors such as Toyota, Nissan, and Honda have cut GM sales to about a quarter of the American market.

In the fiscal year ending March 2004, Toyota earned \$10 billion in profits. GM has now been losing money for three quarters in a row. GM lost more than a billion dollars in the first quarter of this year alone.

Toyota is making nearly \$1,500 a car in profit. GM is losing more than \$2,300 per car.

Now, part of the blame for GM's declining market share lies with GM's inability to adjust to change. In the wake of the OPEC oil embargo, Japanese car makers sold low-cost, fuel-efficient cars to American families. But OPEC imposed its oil embargo more than 30 years ago, and Japanese car companies still lead the way in energy-efficient cars. Today, only Toyota and Honda mass produce fuel-efficient hybrid sedans.

But part of the blame also lies with the American health-care system. Carrying the burden of health-care costs handicaps American companies in their race for global markets.

Americans are smart. Americans work hard. But American manufacturers cannot compete with foreign manufacturers when American companies have to bear the extra load of these higher health-care costs.

You might think that because Americans pay more for health care, well, at least we get better health care. But we do not.

The average American does not have better access to health services. Forty-five million Americans lack health insurance. Fifteen percent of our population is uninsured. Japan offers better access to the dialysis and

diagnostic image services — MRIs and so forth — than America does.

Nor do we have better outcomes. That is a fancy term for saying our people are not healthier after they see a doctor and go to the hospital. We are not better. The average American woman can expect to live to age 79. The average Japanese woman can expect to live 5 years longer, to age 84. People can expect to live longer in Canada, France, Germany, Sweden, Switzerland, and Britain. And all of those countries spend less per person on health care than do we.

America's fragmented system yields high administrative costs. In 2003, administrative costs accounted for nearly a quarter of American health-care costs. That is \$400 billion — a quarter of what we spend on health care.



America is the only country in the industrialized world without a national health system. We do not have a single-payer system like Canada, Britain, or Switzerland. Instead, we have a system of uncoordinated payers, from private insurers to Medi-

care, from employers to State Medicaid programs. It is very uncoordinated, very diverse.

America's massive \$2 trillion health-care bill ought to buy more. America's health-care system needs serious reform.

National health-care reform appears unlikely any time soon. But we have at our disposal — if Congress can act — the means to attack some of the most glaring inefficiencies in our health-care system and reduce unnecessary costs.

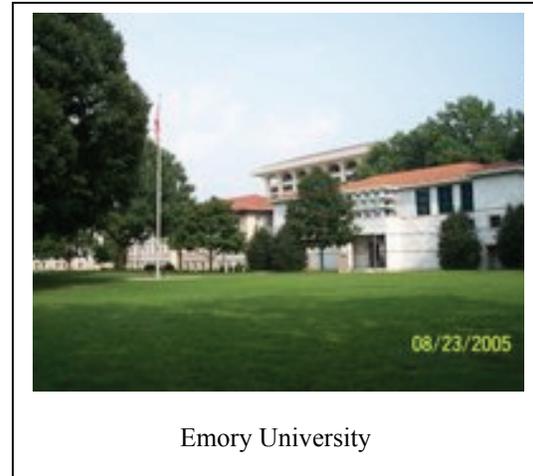
We can improve health care by facilitating the use of health information technology. We can improve health care by tying payment to the quality and value of care, rather than just spending on whatever services the doctors and hospital provide, irrespective of the quality and the outcome.

By encouraging investment in health information technology — computers, interoperability, getting rid of the paperwork — we can reduce unnecessary administrative costs, and we can enhance patient safety and clearly improve the quality of care.

Let me explain. America often invents new medical technologies. We often adopt new medical technologies early. We are leaders in the areas of drugs and devices, pills and procedures, science and surgeries.

But we have not complemented this innovation with the proper use of health information technology. The staggering cost of administering American's pen and paper system of health-care claims proves the point.

Thirty to 40 percent of American health-care transactions still rely on paper claims. That is according to health economist Ken Thorpe of Emory University. These claims can cost from \$5 to \$20 each.



But administering health-care claims electronically can cut those costs to as little as 50 cents each. Professor Thorpe estimates that requiring automated claims processing would save the Federal Government nearly \$80 billion over 10 years. Significant savings would also accrue to the private sector, if it fully automated claims.

And proper use of health IT can prevent unnecessary medical errors, hospitalizations, and other health-care services.

Each year, about 7,000 Americans die because of errors in administering their medication. The equivalent of two 747s crashing today is the number of Americans who die today because of medical errors. That is many more than people who die of gun deaths or in traffic accidents. The equivalent of two 747s crashing every day is the number of Americans who died on account of medical errors — not bad outcomes, but medical errors.

Technology can help ensure that medical professionals give the right drug to the right patient at the right time. We are talking about drugs. We can help to do that by putting bar codes on all drugs, and by using health information technology to link medication administration to a patient's clinical information.

The inability to exchange clinical data among providers often causes duplication of diagnostic tests. Clearly, if you take somebody in Montana who goes on vacation in the great State of Louisiana and gets ill — maybe has a heart attack — and he goes to see a doctor, or goes to the emergency room, that doctor looks at the Montanan, administers some tests, and has no record of the Montanan who happens to be there on vacation — no idea what is going on. He has to start from scratch and run all these tests all over again. Clearly, it is unnecessary duplication. Just think how much more efficient we would be if that Louisiana doctor in that hospital could push a button and

my Montanan's health-care record would be available. Clearly, it could protect the right of privacy and confidentiality, but just think of the savings that can be made. Think of how much better the health care would be to my Montanan in Louisiana.

We could help make it easier for one doctor to pull up that X ray that another doctor took a week before. Duplication is eliminated and the quality of care clearly improves.



Medicare spends \$50,000 more for the average 65-year-old in Miami than for the average 65-year-old in Minneapolis, MN — \$50,000 more per beneficiary in Miami than in Minneapolis, MN. You might ask, why is that? In their last 6 months of life, Medicare beneficiaries in Miami visited specialists six times more often than those in Minneapolis. You might say, they are healthier; more is spent on them. Or they go because there are more specialists in Miami compared to Minneapolis. But that is not what is happening.

By using health IT appropriately, we can reduce error and duplication and overuse of services. We can also

coordinate senior care to ensure that they receive adequate preventive care and management for their chronic conditions. In fact, patients who see primary care physicians in Minneapolis tend to be healthier, where fewer dollars are spent, than do seniors in Miami who see more specialists. That is counterintuitive, but that is the fact.

Why is America falling behind in health information technology? Part of the reason is lack of investment. The health-care industry invests only about 2 percent of its revenues in health information technology. Other information-intensive industries invest about 10 percent. Think of the banking industry.

As a result, many health practitioners in America have limited information technology capability. In Britain, nearly all general practitioners — 98 percent — have a computer somewhere in their office. In America, extremely few small physician practices — just 5 percent — use anything but a pen and paper.

We have to help ensure that health information systems can communicate with one another. We need an agreed-upon set of standards so that health information technology systems can work together. Otherwise, we will have a Tower of Babel preventing communication of critical health information.

We can do better, and that is why I have worked with my col-

leagues on the Finance Committee and on the HELP Committee to introduce the Better Health-care Through Information Technology Act (S. 1355), a bill which facilitates nationwide adoption of information technologies in the health-care field. It will help those systems to talk to one another, it will set up loans and grants to encourage the use of more health IT, and it will help us to improve health-care quality.

We need to emphasize quality care. Medicare is the dominant care in America's health system, but Medicare is at best neutral and at worst negative toward quality. Medicare pays for the delivery of a service; Medicare does not pay for the achievement of health. And we see the effect. Patients receive recommended treatments only about half the time, and more care is often not producing better care.



“The Tower of Babel”
by Pieter Brueghel the Elder

Among the 50 States, levels of cost and quality vary greatly. In my home State of Montana, for example, Medicare spends about \$5,000 per

year per beneficiary. Quality of care ranks near the top. By contrast, some States spending around \$7,000 a year per beneficiary — \$2,000 more — have quality that ranks near the bottom.

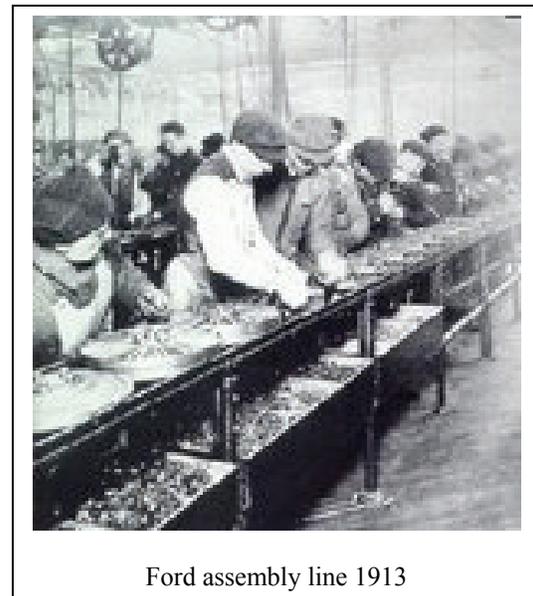
States such as Montana, with its higher proportion of primary care practitioners, often produce lower costs and better quality. Less expensive care, when concentrated and patient centered, can do more for a patient than high-cost services.

I have introduced a bill with my colleagues, Senators Chuck Grassley, Mike Enzi, and Ted Kennedy, that will build value into the way Medicare pays for its services. The Medicare Value Purchasing Act of 2005 (S. 1356) will provide higher Medicare reimbursements to providers who show they are working to improve the quality of care they deliver.

Together, these two bills I mentioned form a package. This quality bill goes hand in hand with the health IT bill I just mentioned. Together, they will help improve American health care and help keep American businesses competitive.

In his recent book about competitiveness, *The World is Flat*, Tom Friedman talks about the need to strengthen what he calls the “muscles” of the individual American worker. Part of the solution to global competition, he says, lies in ensuring that the American health-care system provides our workers with access to

health-care services without placing them or their employers in financial jeopardy. That means congressional action on health quality, and it means congressional action on health IT. I stand ready to work with my colleagues to realize that goal. Until we act, health-care costs will continue to make America less competitive. Until we start investing in health IT, we risk falling further behind. And until we start paying for health-care quality, we risk slowing our progress to a better future.



A little more than a century ago, in 1903, a man named Henry Ford established the Ford Motor Company in Detroit, MI. That same year, a man named Orville Wright became the first person to pilot an airplane in powered flight. Americans have been at the forefront of transportation ever since. In 1929, the Duesenberg J, a premier four-door luxury sedan, began rolling off the assembly line.

The price was expensive at that time, starting at \$13,000.



1929 Duesenberg J

Like the automotive industry, health care has come a long way in the last century. And like the automotive industry, health care needs to adjust and adjust dramatically to change. If we invest in health IT and start paying for health-care quality, we can help both the American automobile industry and the American health-care system to keep moving forward.

*151 CONG. REC. S9107-09 (daily ed.
July 27, 2005).*

Savings and Economic Competitiveness

Originally delivered September 29, 2005

More than 10,000 years ago, on the eastern edge of the Mediterranean Sea, people became farmers. They started growing crops of emmer and einkorn wheat. They harvested the grain with curved, handheld sickle-blades.



3000 BCE Sumerian harvester's sickle

And 5,000 years ago, Mesopotamian farmers yoked cattle to pull plows. The plows' bronze-tipped

blades cut deeply, greatly increasing productivity.

Today, in Ethiopia, wheat farmers still harvest their wheat with oxen or by hand. They use tools much like those invented 5,000 years ago. An Ethiopian wheat farmer harvests an acre of wheat in a week.

A few weeks ago, in Montana, a wheat farmer whom I know near Fort Benton, in Chouteau County, finished harvesting this year's hard-red spring-wheat crop. He and his family drive a John Deere 60 series STS combine that they bought for more than \$225,000, a couple of years ago. STS stands for the "single-tine separator" system that the combine uses for threshing and separating. The combine's rotor technology yields a smooth, free-flowing crop stream, giving the farmer higher ground

speeds and increased throughput capacity. This Fort Benton wheat farmer harvests 5 acres and 220 bushels of wheat in half an hour.

What the Ethiopian farmer can do in a week, the Montana farmer can do in 6 minutes.

There are a lot of reasons for the difference: land, climate, seed quality, farming skills. But one big difference between the productivity of farmers in Ethiopia and the productivity of farmers in Montana is their tools — their physical capital.

Capital distinguishes the modern age. Capital is the most important reason why the average American earns about \$40,000 a year and the average sub-Saharan African earns about \$600 a year. Capital makes American workers more productive and more competitive.

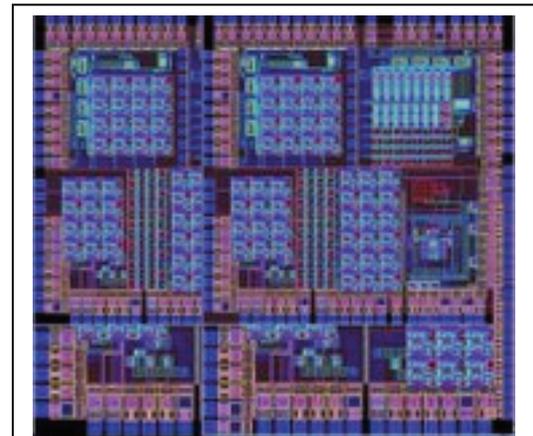
This is my fifth address to the Senate on competitiveness. Starting this summer, I spoke on competitiveness generally. I spoke on the role of education in competitiveness. I spoke on the role of trade in competitiveness. I spoke on the role of controlling health-care costs in competitiveness. And today, I wish to speak about the role of capital and savings in competitiveness.

Capital means financial wealth — especially that used to start or maintain a business. Many economists think of capital as one of three fun-

damental factors of production, along with land and labor.

Capital and the productivity that it engenders set apart developed economies from the developing world. With capital investment, the construction worker uses a backhoe, instead of a shovel. With capital investment, the accountant uses a calculator, instead of an abacus. With capital investment, the office worker uses a personal computer, instead of a pencil.

In the late 1950s, there were about 2,000 computers in the world. Each of these computers could process about 10,000 instructions per second.



integrated circuits

Today, there are about 300 million computers. Each of them can process several hundred million instructions per second.

In less than 50 years, the world's raw computing power has increased four-billion-fold. This sustained increase in productivity is unparalleled

in history. Capital investment in information technology made it possible.

In 1960, capital investment in information technology was about 1 percent of our economy. By 1980, investment in IT increased to 2 percent of our economy. By 2000, investment in IT increased to 6 percent of our economy.

These are slow, single-digit increases in investment. But look at the revolutions that they ignited.

This information technology investment contributed to a new era of American worker productivity and competitiveness. That productivity continues today. In the mid-1990s, when the benefits of IT investment kicked in, American workers began producing nearly 4 percent more per hour. As increased productivity surged through the economy, the standard of living improved for the Nation.

Capital made possible this unprecedented productivity. Investment made possible this capital. And savings made possible this investment. Savings is the seed corn for productivity growth.

National savings fuels investment. Investment provides capital to our workers. Capital ignites productivity. And productivity makes our economy accelerate.

Savings is what is left of income after consumption. National savings collects the surpluses of private households, businesses, and governments. When workers put part of their salaries into 401(k) plans, that adds to national savings. When companies hold on to their excess earnings and profits, that too adds to national savings. And when the government runs a budget surplus, that public sector savings adds to the national pool of savings, as well.

The three elements of national savings — household savings, corporate savings and public savings — are fundamental to economic competitiveness. Savings lets us invest in new factory equipment, machines, or tools. Savings lets us invest in high-technology innovations. Savings lets us invest in human, physical, and intellectual capital.

But America's level of national savings is dwindling. The decline of America's savings demands action.

At the end of last year, net national savings stood at just under 2 percent of gross domestic product. That is less than \$2 for every \$100 that our Nation earns. This is down more than 70 percent since 2000. No other industrialized country in the world has such a low national savings rate.

If we break down national savings into its component parts, we can see why national savings has fallen off. First the good news: Corporate sav-

ings has held steady — even increased — over the past decade. But the good news ends there.

Personal savings — what American households are contributing to the Nation's savings — has fallen dramatically. Just 10 years ago, Americans saved about \$4 of every \$100 that our economy produced. By the end of 2004, we were saving just 99 cents. And today? The recent data show that personal savings has fallen even further, below zero.

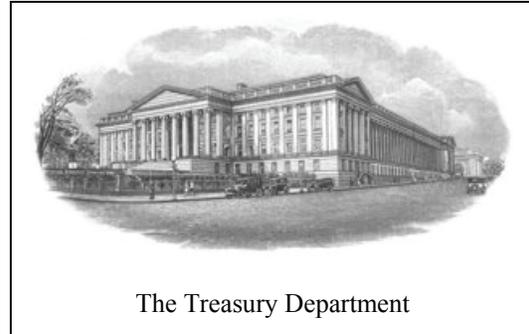
In July, for every \$100 of disposable income that Americans generated, we spent that \$100, plus 60 cents more.

Rather than saving, American households are borrowing. In the 1980s, total household debt equaled about 70 percent of a year's after-tax income. By 2004, household debt equaled 107 percent of after-tax income.

And the bad news gets worse. As American households fish pennies out of the Nation's piggy bank, there is a growing hole at the bottom. The public sector is draining national savings as the huge Federal budget deficits grow.

In just 4 years, the Federal Government's contribution to national savings has gone from a positive contribution of more than 2 percent of the economy, to a drain of more than 3 percent. Instead of contributing \$2 for every \$100 the economy earns,

the Federal Government takes out \$3 dollars. Government deficits are the chief cause of our abysmal national savings rate.



With national savings so low, how has America's economy remained an engine of growth?

We find the answer in Japan, Europe, China, and even the developing world.

Americans have stopped saving. But the rest of the world has not.

Today, Americans turn to foreign lenders for our savings. The rest of the world has become America's creditor, happily lending their savings to our Government, corporations, and households. Fully 80 percent of the world's savings come to America. The world's largest economy has become the world's largest debtor.

This is a big change. Between 1950 and the early 1980s, our foreign borrowing was balanced. Some years we borrowed from foreigners. And other years we lent. But for most years, we remained a net creditor.

Since then, our situation has dramatically reversed. We now depend on foreigners to fuel our economy.

Look at foreign and domestic investment flows. Last year, our net borrowing from foreign lenders totaled nearly \$700 billion. This year, our net foreign borrowing could well exceed \$800 billion.

This kind of borrowing adds up. As recently as 1985, America had zero net foreign debt. Today, America's net foreign debt is the size of nearly 30 percent of our economy.

The last time that we had this level of foreign debt, Grover Cleveland lived in the White House. The last time that we had this level of foreign debt, 18 percent of Americans were unemployed, violent railroad strikes shook the Nation, and a deep depression gripped the world economy.

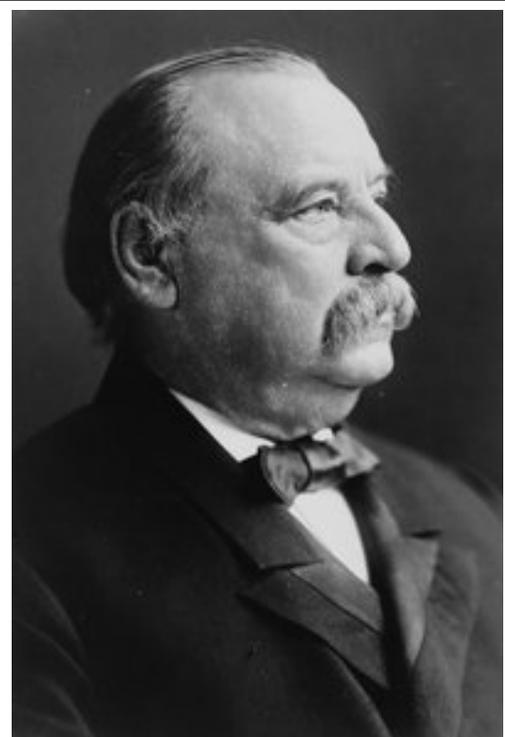
What is worse, soon, the ratio of foreign debt to GDP will hit 50 percent. In 7 years, the ratio will hit 100 percent.

This is unprecedented, not just for the United States. It is unprecedented for any modern industrialized country.

We welcome foreign investment in America. Our economy's openness to the world's capital has helped keep our economy strong. Foreign investment fuels our economy and creates good American jobs.

But if we continue to become increasingly dependent on foreign capital, then we will have to pay the piper.

First, continued borrowing means an ever-growing claim on our Nation's assets. The more that foreigners lend to America, the more dividend and interest payments they will collect — not Americans but them.



Grover Cleveland

In 2005, for the first time since these data were recorded, America will pay more on foreigners' investments in America than American investors earn on their investments abroad. This year, these payments could amount to \$30 billion. By

2008, these payments could rocket to more than \$260 billion.

That would be a quarter of a trillion dollars paid out that would not boost our productivity. That quarter of a trillion dollars would increase foreign countries' standard of living, not ours.

That would be a quarter of a trillion dollars simply paying on our existing debt. More and more, we would have to borrow new amounts from foreign sources to pay back funds that we had already borrowed.

And that would be a quarter of a trillion dollars of behavior that one associates with a Third World economy, not the United States of America.

Second, foreigners are increasingly not investing their savings in America's productive sectors, but in U.S. Government securities. Foreigners are frequently buying our Government securities as part of schemes to manipulate currency markets and subsidize their exports. Those schemes further hurt our competitiveness and our future standard of living.

That is, they are not investing in plants and equipment; they are investing in our securities so they can accomplish other objectives and goals.

When 80 percent of the world savings flows to one country, the

world economy is unbalanced. When 80 percent of the world savings flows to just the United States of America, that is a big imbalance.

This imbalance creates dangerous problems and distortions in the U.S. economy and throughout the world.

Eventually, the pendulum will swing back. The world economy will return to equilibrium. Foreign investors will decide to rebalance their portfolios. They will reduce their lending to America. America will have to pay more for its borrowing. Interest rates will rise. This rebalancing could cause severe dislocations in our economy.

We can steer clear of some of these costs. But we can do so only if we consider them now and do what we can to secure our economy from sudden and difficult adjustments later.

Where do we look for solutions?

America must increase its own national savings. We must finance more of our own investment.

We must create a reliable and stable pool of investment funding to fulfill our investment needs. This saving will also make us more profitable in the long run. We will gain the returns on capital investment here. We will not send them abroad.

We will continue to welcome foreign savings to our shores. But

America will have a higher stock of self-financed investment.

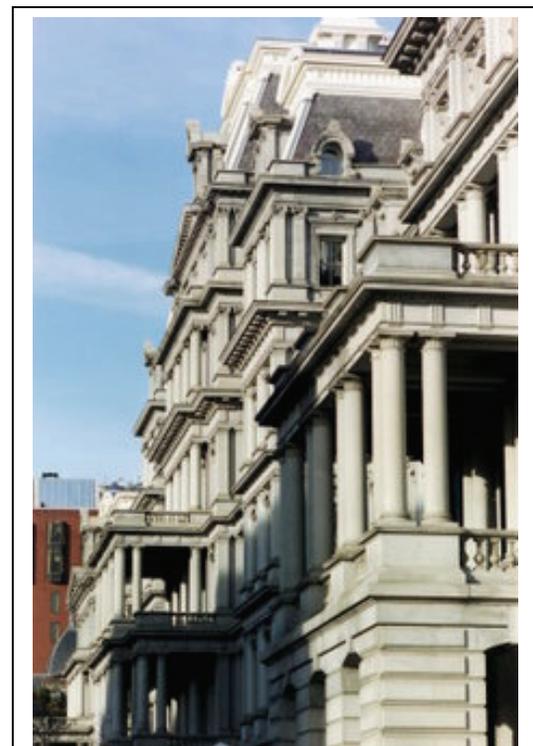
How do we do this? First, we must plug the biggest leak in our national savings pool: the federal budget deficit. The federal government continues to run huge deficits. Prior to 2003, the record deficit was \$290 billion in 1992. But in 2003, the government set a new record deficit of \$375 billion dollars. In 2004, the government set an even higher record deficit of \$412 billion dollars. This year, the government is projected to run a deficit of more than \$300 billion dollars. The last 3 years have produced the 3 largest deficits in the Nation's history.

Now with the immense costs of Hurricane Katrina, Goldman Sachs predicts that the deficits for the next 2 years will once again be about \$400 billion. That would be 2 more years of deficits once again approaching record levels. Each year's deficit adds up.

These deficits increase our national debt. At the end of fiscal year 2001, the government's debt held by the public was \$3.3 trillion. By the end of this month, economists project that debt held by the public will rise to \$4.6 trillion. This would be an increase of 40 percent in just 4 years.

There are times when deficits are appropriate. If the economy is in a recession, net borrowing by the federal government can help to restore prosperity and job growth. But with

the economy humming along now, huge deficits no longer serve Americans well. Instead, these large deficits divert domestic and international savings away from productive economic sectors. These productive sectors need savings to invest in innovative capital goods that can boost productivity, help our economy to grow, and improve our Nation's living standards.



the Eisenhower Executive Office Building
home of the
Office of Management and Budget

We must be honest about our spending needs today and in the future. Budget forecasts for the near-term that neglect the costs of war and of neglect upcoming reductions in revenues — such as reform of the alternative minimum tax — serve no one but cynical political strategists.

And the retirement of the baby boom generation beginning in 2008 will put enormous long-term pressure on the federal budget through increased Social Security, Medicaid, and Medicare spending. We must own up to these long-run problems.

Once we define the problems honestly, we must find ways to solve them.

First, we must restore the pay-as-you-go rules for both entitlement spending and tax cuts. We are stuck in a hole. We have to stop digging. We must pay for any new spending or tax cuts that we enact.

Until 2003, tough pay-as-you-go rules governed the Congressional budget process. But these rules expired in 2003. A virtually meaningless alternative has taken their place. We must restore strong and meaningful pay-go rules.

Second, we must reduce the annual tax gap. As much as \$350 billion of taxes went unpaid in 2001. Since then, the government has collected only \$55 billion of that 2001 shortfall. These huge gaps occur every year. We cannot afford this tax gap.

Third, we must eliminate wasteful and unnecessary spending. For example, the Inspector General at the Department of Health and Human Services recently discovered that the government had paid nearly \$12 mil-

lion in benefits to recipients in Florida who had already died.

Fourth, we must eliminate wasteful and unfair tax breaks such as abusive tax shelters and corporate tax loopholes.

Finally, we must slow the growth in health-care costs. We cannot rein in budget deficits without controlling the growth in health-care costs. The private sector cannot sustain its current health-care cost growth. And neither can the public sector. We cannot clamp down on health-care costs in the public sector alone. Providers will just shift health-care costs to the private sector. Fortunately, solutions that contain private sector health-care costs will likely also help contain public sector health-care costs, as well.

Taking these five steps would go a long way towards reducing Federal budget deficits and increasing national savings.

Increasing private savings is more complicated. We cannot adopt pay-as-you-go rules for families. Instead, we have to provide families with the tools that they need to develop their own growth plan.

The first tool is financial education. Too few Americans know how to develop a family budget. And too few know how to assess the risk of an adjustable rate mortgage when interest rates are rising.

We need to provide our children, and their parents and grandparents, with the tools that they need to make good financial decisions — to have more savings and less debt.



Programs such as “Stash Your Cash” — a program to teach young people the basics of finance, saving, and investing — are a good start.

As part of “Stash Your Cash,” this summer, 15 pigs — each one 4 feet tall and 750 pounds — appeared in the streets of Washington. And it was not just another political statement.

The colorful animals on street corners were oversized piggy banks. Local middle school students and artists painted each one.

“Stash Your Cash” gets to kids early. It teaches them financial vocabulary, how to create a budget, and how and why they should save for the future. It teaches middle-school stu-

dents that creating a budget helps them understand where their money goes, ensures that they do not spend more than they earn, finds uses for money to achieve goals, and helps them set aside money for the future.

We can all benefit from these lessons. Savings is vital for our children’s and our families’ financial future. And what is vital for our families is vital for our country.

Second, we need to make it easier to save.

The most successful savings programs are payroll-deduction savings through employer-sponsored 401(k) plans. We can make these programs even more successful by encouraging employers to enroll eligible employees automatically. Employees would opt out of saving instead of opting in. Without automatic enrollment, just two-thirds of eligible employees contribute to a 401(k) plan. With automatic enrollment, participation jumps to more than 90 percent. The largest increases are among younger and lower-income employees.

Only half of private sector workers have a 401(k) or similar plan available to them. We need to bring payroll-deduction retirement savings to the other half.

Who is that other half? Part-time workers, those who put in less than 1,000 hours a year, do not have to be covered by 401(k) plans. Small employers are less likely to offer 401(k)

plans, or similar arrangements, to their workers. And lower-income workers are less likely to have a plan available than moderate- and higher-income workers.

We have a voluntary pension system. We should not change that. But we can make savings opportunities available to more workers without forcing employers to provide more benefits.

Third, we need to make incentives for saving more progressive. Like many tax incentives, our current savings incentives give more bang-for-the-buck to those in the higher tax brackets. Our income taxes go to just the opposite.

In 2001, we took an important step toward fairness by creating the Saver's Credit. The Saver's Credit helps low-to-moderate-income taxpayers to save by providing a credit of up to half of the first \$2,000 that they contribute to an IRA or 401(k) plan. More than 5 million taxpayers claimed this credit in 2001. It works. But it will expire after 2006. We must extend it and we must expand it to cover those with no income tax liability.

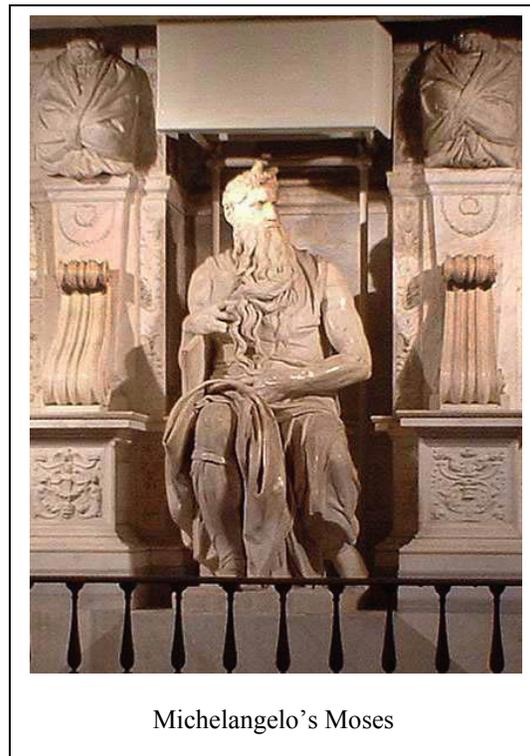
In ancient times, people viewed the toil of farming as a curse. The ancient text tells how when man left the Garden of Eden, he heard God say:

“Cursed be the ground because of you;

By toil shall you eat of it
All the days of your life:
By the sweat of your brow
Shall you get bread to eat,
Until you return to the
ground —

For from it you were
taken.”

But now, increased investment, capital, and productivity have made it so that we may hear the blessing with which Moses blessed the children of Israel on the plains of Moab, across the River Jordan:



Michelangelo's Moses

“The LORD will give you
abounding prosperity in . . .
the offspring of your cattle,
and the produce of your soil in
the land that the LORD swore
to your fathers to assign to
you. The LORD will open for

you His bounteous store, the heavens, to provide rain for your land in season and to bless all your undertakings. You will be creditor to many nations, but debtor to none.”

From ancient times, the sages recognized that the terms “prosperity” and “debtor” rarely apply to the same country.

Let us return to being a country whose saving provides the seed corn that brings those blessings of “abounding prosperity.”

Let us seek the blessings of being “creditor to many nations, but debtor to none.”

And let us do the work that we need to do to see that “[t]he LORD will [continue] . . . to bless all [the] undertakings” of this great Land.

151 CONG. REC. S10,697-99 (daily ed. Sept. 29, 2005).

Energy Competitiveness

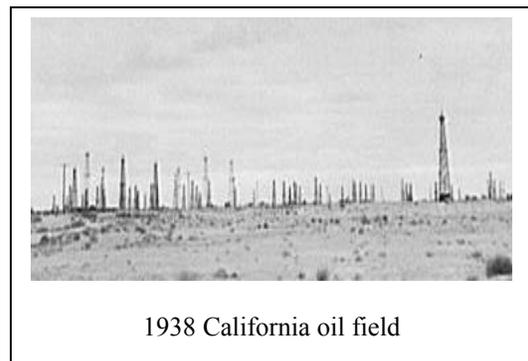
Originally delivered October 17, 2005

In the 12th century, in the Bay of Biscay, Basque sailors began to hunt right whales. The Basques melted the whales' blubber into oil to fuel their lamps. When the whales died out in Spanish waters, the Basques sailed north to Iceland pursuing the source of their lamp oil. By the 16th century, whalers hunted extensively in Icelandic waters to find the fuel for light.

As our former colleague Phil Gramm wrote in 1973, from American colonial times through the middle of the 19th century, whale oil provided the major source of artificial lighting in America and Europe. But in the middle of the 19th century, America faced an energy crisis. The price of whale oil was rising. From a low of 23 cents a gallon in 1832, it rose to \$1.45 a gallon in 1865.

But then in 1859, people discovered petroleum oil in western Pennsylvania. The rising price of whale oil encouraged an engineer to invent a process to convert that western Pennsylvania black oil into a new fuel, kerosene.

The whale oil era was ending, and the petroleum era began.



One hundred fifty years later, at the turn of the 21st century, gasoline prices are rising. As late as December 2002, Montana gasoline prices

averaged a little more than \$1.30 a gallon. On September 5 of this year, the average price hit about \$2.90 a gallon.

In the wake of Hurricane Katrina's disruption of oil refineries, many Montanans feel gouged by sky-high gasoline and diesel prices. High gas prices hit low-income Montanans particularly hard. Peggy Grimes, director of the Montana Food Bank Network, says: "[P]eople are going without food more often and coming to visit local food pantries more often." Just think of people having to make choices such as that.

Rising natural gas and fuel oil prices have many Montanans concerned about how they will heat their homes this winter. And rising fertilizer costs will hit many Montana farmers hard.

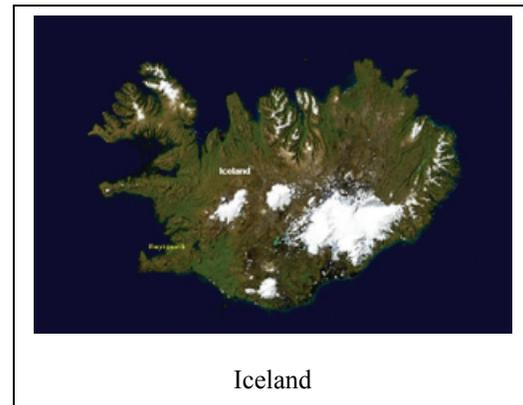
In the short term, petroleum price increases are forcing painful adjustments. In the medium term, we need to invest in conservation, weatherization, and upgrading the efficiency of cars, appliances, and machines that use energy. And in the long term, we need to adjust intelligently to higher petroleum costs, systematically and purposefully diversifying our energy sources.

In the middle of the 19th century, America led the way to the next energy era, leaving the whale oil era behind. Now, at the beginning of the 21st century, America must once again lead the way to another energy

era, an era that severs the world's dependence on Middle Eastern oil. Domestic oil and gas production will remain a critical part of our energy security for some time. But to lead the world to a new era, we will have to make major investments in new innovative forms and uses of energy.

Once again, we have cause to look again across the waters to Iceland.

Iceland is leaving the petroleum era behind. Iceland is entering the hydrogen era. The government has announced its intention to become a hydrogen-based economy by 2030.



In Iceland, icy water cascades down from massive glaciers. And in Iceland, boiling water bubbles up from just beneath the surface. Iceland already harnesses these renewable resources to generate virtually all of its electricity and heating from hydroelectric and geothermal sources.

But with no fossil fuel resources, Iceland relies heavily on imported oil to power cars, buses, and the fishing

trawlers that provide 70 percent of Iceland's income.

To break that dependency, and to reduce greenhouse gases, Iceland is turning to fuel cells. Fuel cells use hydrogen and oxygen to generate electricity to power engines. And the vehicles powered by those engines emit only water as exhaust.

Iceland plans to use its cheap electricity to split water — H_2O — into its component parts — hydrogen and oxygen. Iceland uses the process of electrolysis. Electrolysis runs an electric current through bonded elements to separate the elements.

Iceland's capital Reykjavik intends to replace its entire fleet of 80 buses with fuel cell buses. Next, Iceland hopes to convert private cars. And after that, Iceland hopes to switch the huge Icelandic fishing trawlers to hydrogen power.



General Motors fuel cell powered car

Iceland thus hopes to convert its renewable hydroelectric and geothermal energy into a form that can power its transportation system, and,

in the process, Iceland hopes to slash emissions and end its dependence on fossil fuels.

Maria Maack, the project director of Iceland New Energy, explained:

“We are so reliant on our fisheries, and the fisheries are totally dependent on oil. So we have a chance to be quite independent of this. . . . [I]t's being independent and relying on ourselves to continue the way we live.”

Bragi Arnason, a chemistry professor at the University of Iceland and a leader in hydrogen technology, beamed: “I think we could be a pilot country, giving a vision of the world to come.”

This is my sixth address to the Senate on competitiveness. Starting this summer, I spoke on competitiveness generally. I spoke on the role of education in meeting that challenge so we Americans can be more competitive in the future. Education at all levels — K through 12, continuing education, higher education, technology schools — is the long-term key for America to remain the biggest and strongest economic power in the world, given the challenges of China, India, and other countries that are taking advantage of the Internet and other technologies which are making other countries more competitive than they have been in the past.

I spoke on the role of trade, how we have to be more aggressive in trade to market our products overseas better and knock down trade barriers. I spoke on the role of controlling health-care costs which make us less competitive worldwide. Our health-care costs per capita are twice that of the next expensive country, and I doubt we are twice as healthy. I spoke on the role of capital and savings. We are not a net savings country; we are basically a net deficit country. Other countries save so much more than we save. That means capital that is available to develop new technologies, both technical technologies and human technologies.

Today I wish to speak about the role of energy in competitiveness. If we are to be a strong country and meet the foreign challenge, clearly, we need to be much more independent in energy production.

Iceland's Professor Arnason is not alone in his vision of a hydrogen future. At the University of Montana, Missoula College of Technology, Dean Paul Williamson has a similar vision. He is working to use hydrogen as the focal point to build a state-of-the-art college of technology and futures park. He wants to create something that folks in Geneva will get on a plane to come to America to see. So we are not always going overseas to see what they are doing, they will come to see what we are doing. It is a laboratory of excellence, to serve as a gateway to alternative

technology in a much larger community.

Dean Williamson's vision is to marry Montana's resource base with the best trained workforce, and he is working to make the Missoula College of Technology a focal point to transform that vision into reality. Missoula College of Technology is creating the educational venue, and with it, they will match a business gateway to help to bring business and industry to the area, creating networks of microenterprises.

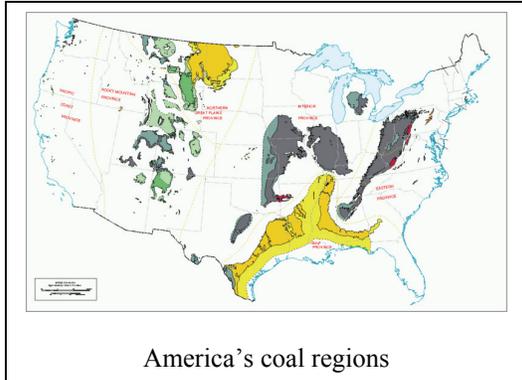
All around Montana and the Nation, people are working on renewable and alternative energy research and industry. Rising energy prices, combined with smart Government incentives, have spurred innovation, and we are already beginning to reap the benefits.

I have already talked about one example — hydrogen. Another example is coal conversion.

Coal gasification can be used to help produce hydrogen, and coal gasification can also be used to produce fertilizers, other chemicals, and diesel fuel. Our State's Governor, Brian Schweitzer, and I have targeted a process to turn Montana's coal into clean-burning diesel and jet fuel. The process is called Fischer-Tropsch, or F-T, for the German scientists who developed it in the 1920s.

Energy technology firms in America and elsewhere are fine-tuning F-T

to make it even cleaner. F-T fuels are relatively clean. The process can recover sulfur, mercury, and arsenic as marketable byproducts.



Jack Holmes, president of Syntroleum, extols the cleanliness of F-T diesel. He says it can be burned straight or blended with regular diesel fuel. He says: “It’s like a single-malt scotch.” Not quite, but we get the drift of it.

Governor Schweitzer calculates: “It would cost less than \$1 per gallon to make that diesel.”

The break-even point for F-T comes when crude oil sells for more than \$35 a barrel. These days, that looks like a pretty safe bet.

To develop processes such as these, in the just-passed energy bill, I worked to include an investment tax credit for the coal gasification technology used by the F-T process. In the highway bill, I worked to include a 50-cent-a-gallon tax credit for companies that generate fuel using an updated version of the F-T process. I also included a Federal loan guaran-

tee so that companies can finance these capital investments.

We have a real opportunity here. The coal-to-fuel technology can be a win for everybody if we do it right and if we make sure that any facility uses the cleanest and most advanced technology available — again, if they do it right. It will help lessen our dependence on foreign sources of energy while creating thousands of jobs in America. I am proud to join our Governor in trying to bring a new investment in this technology to Montana and to the Nation.

A third example is renewable and alternative energy in the form of wind energy. They may call Chicago “the windy city,” but many say Great Falls, MT, is the windiest city in America. “Wind is like water flowing out of the mountains,” says Bob Quinn, a farmer from Big Sandy, MT. Big Sandy is a little bit east of what we call the eastern front. It is on the edge of the Rocky Mountains and the Continental Divide. The eastern front falls off like a big cliff. That is why we call it the front. By the time it gets to Big Sandy, which is not too far away, the wind flows as water does flowing out of the mountains.

Closer to the mountains, the wind is turbulent, but across the prairie, it flows uniformly like a huge river, and that makes it attractive as a wind farm site.

Five years ago, Bob traveled to Germany to research his ancestry. He visited a distant cousin who had developed a wind project and was contemplating others in Chile or South Africa.



Bob asked him, “Why are you thinking about going clear to Chile to build a wind farm when you can buy one in Montana, where we have this river of wind?” The cousin reconsidered and chose Montana. Along with another partner and two cousins, they formed WindPark Solutions America and began looking for sites.

They settled on Judith Gap, a town of about 150 people in central Montana. Eventually, WindPark sold the project to Invenergy Wind, a Chicago-based company that will own and operate the project. Invenergy is now building a \$150 million facility, the Judith Gap wind farm.

Billings resident Ludlow Howe manages the construction. His work crews erected 130 turbines in two phases. The wind farm will cover an area about 8 miles long and 5 miles

wide, straddling Highway 191 between Judith Gap and Harlowton.

So far, workers have assembled at least 27 towers, colored white-gray to blend with the sky. Each tower is 260 feet tall. On top of each tower sits a generator box the size of a motor home. Seven-ton rotors with 122-foot blades sweep up to 387 feet into the air. Each turbine weighs more than 400,000 pounds. A system of 140 bolts secures each tower to its base.

The rotors come from Houston, the turbines come from North Carolina, and tower sections come from China, Korea, and Fargo, ND.

Ludlow says of the wind turbines: “They will actually seek out the wind at 9 miles per hour. They will pitch their blades, just like a sailboat. They will trim their sails.”

The plant should be in full operation soon. NorthWestern Energy will buy power from the 150-megawatt wind farm for customers in central and western Montana.

Wheatland County Commissioner Tom Bennett says admiringly: “It’s environmentally friendly. It’s renewable. It’s something we’ll have forever. You tell me any negative on this. We couldn’t find any.”

A fourth example of renewable and alternative energy is biomass and ethanol.

Energy competitiveness can also come from a clear commitment to the development of biomass and ethanol-based fuels. Currently, most alternative fuels are not profitable without a Federal subsidy, but if we continue to support the industry until it reaches profitability, much as with wind power, it will become a self-sustaining model in its own right.

A Pentagon-sponsored study called “Winning the Oil Endgame” projects that biomass and ethanol-based fuels can create 750,000 new jobs. This effort could revitalize rural and agricultural areas of America. It could add tens of billions of dollars to farmers’ revenue every year.

Rural America is at the center of the next age of domestic energy production. Rather than spending \$50 billion a year overseas to buy oil from foreign countries, we could be buying into rural America. We must continue to support these new industries.

The man who headed the research team that created the hybrid Toyota Prius tells his young researchers:

“Forget about concentrating on such things as trivial increments in performance or cost cutting. If you restrict yourself to refining the prevailing paradigm, you will never come up with an earth-shattering idea or technology.”

That is the guy who heads the team that formed the new hybrid Prius, which is doing very well.

America needs to follow that sage advice. We need to move beyond trivial increments in refining the prevailing petroleum paradigm. We need to move on to the next earth-shattering ideas and technologies.

During World War II, America created the Manhattan Project in an effort to develop the first nuclear weapons and win the war against fascism. That important effort involved sites at Hanford, Los Alamos, Oak Ridge, and more than 30 locations in all. By 1945, the project employed more than 130,000 people. It cost nearly \$2 billion, or \$20 billion in 2004 dollars — that is, in current dollars.

Today, America needs a new Manhattan Project. As Tom Friedman put it in his book, *The World is Flat*, we need “a crash program to . . . develop clean alternative energies.”

On May 25, 1961, President John F. Kennedy told the Congress:

“I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.”



John F. Kennedy

Don't you remember that? That was a real challenge, an important and necessary challenge. It lifted us up, helped us develop technologies, and made America feel good about itself.

Today, America needs a new challenge. As Friedman puts it, we need "a similar legacy project . . . a crash program for alternative energy and conservation to make America energy-independent in 10 years."

Developing new energy sources in America will contribute to energy independence. Energy independence will contribute to national security, and energy independence will contribute to the stability of energy sources, allowing business to go forward without the jolts of supply disruptions. The jolts of supply disruptions

are a huge additional part of the problem of dependence.

As well, developing new energy sources in America has the potential to turn renewable and alternative energy development into comparative advantage for America, to gain an advantage for America. If we can figure out how to make clean, cheap energy before other countries, then those other countries will pay American companies to build energy production there.

Because of our early investments in the 1970s, America had an opportunity to become the world leader of the fossil alternative energy. With lower energy prices and decreased Federal support, however, our advantage dwindled.

Countries such as Denmark and Germany built on our initial research. Denmark and Germany have become the world leaders in wind generation. Danish companies are now the number-one provider of wind services in America, outnumbering even American companies.

The Danish became world leaders in wind power production by first growing the industry at home. According to the Danish Wind Industry Association, the Danish wind industry has created 20,000 new jobs. It exports 90 percent of the wind turbines it creates, and it supplies 20 percent of Denmark's electricity.

This is all because Denmark was the second country to reach the critical production level of 100 megawatts a year in 1987. That was 4 years after America. But we decided to end wind power subsidies for a time. That put them ahead.

There is a silver lining, however. America still has the resources to create technologies that could be turned into comparative advantages. Because of our wind power penetration, we are still fairly advanced compared to other nations. With a concerted effort for research, development, and production of wind generation — or solar power or other energy programs that we have been working on — we could easily become the world leaders in those industries if we put our mind and effort to it.

America has underinvested in research and development. This happens because firms invest in R&D based on the private return to their firms alone.

The social rate of return to investment, however, exceeds the private return. As economists put it, positive externalities exist. These external benefits come from knowledge spillovers, the creation of public goods, and economies of scale. The existence of these externalities — an awful word, but it is so powerful — counsels that the Government needs to subsidize R&D until the private rate of return matches the social rate of return. Traditionally, governments have used a few different policy tools

to subsidize R&D: the first as government research grants to industry and educational institutions, and, second, to provide tax incentives for R&D. A third tool is the increasingly popular and effective technique of offering prizes to spur innovation.

For example, in 1714, the British Government offered the longitude prize, a prize of £20,000, for precise determination of a ship's longitude. John Harrison solved the problem using precision clocks and eventually won the prize.



A year ago, SpaceShipOne won the Ansari X Prize competition. The X Prize Foundation offered \$10 million to the first private venture to send a privately funded craft into space twice in a week.

The Clay Mathematics Institute of Cambridge, MA, offers a \$1 million prize each for the solutions of seven Prize problems. The problems are classic mathematical questions that have resisted solution over the years.

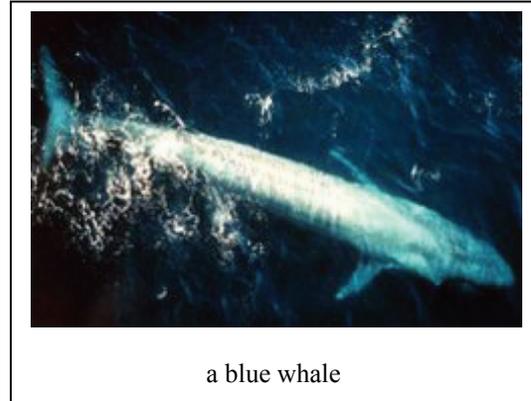
Prizes like these involve little risk for the Government. And these prizes provide a very efficient, market-based approach to subsidy. For every success, there will be numerous failures. It is extremely difficult to predict who the winner will be. America needs to invest in a basket of potential technologies.



In 1874, it was a dream of science fiction: Jules Verne envisaged a world in which water would replace coal as the fuel of the future.

Now Icelanders believe they can do just that; they can turn that dream into science fact. And they have taken steps to create the world's first hydrogen society.

In old Icelandic sagas, whales were either good or evil. The evil whales swallowed boats and men. Just talking about such whales while on a boat would bring bad luck.



In contrast, the blue whale protected both boats and men. Blue whales would scare away all the evil whales. According to old Icelandic sagas, blue whales would warn fishermen by circling a boat three times in a row.

Sometimes energy sources can also appear to be good or bad. With hydrogen, Iceland hopes it has found the energy equivalent of a good blue whale.

Certainly, with the 1970s oil shocks and now the Katrina-related price spikes, we have been warned at least three times in a row to seek out safer seas.

In the 19th century, America plotted the course to a more productive energy future. In this new century, let us see that America once again leads the way.

Let us once again chart a course to more secure energy waters. And let us once again explore the uncharted oceans of possibilities and bring the energy that we need safely home.

151 CONG. REC. S11,411-14 (daily ed. Oct. 17, 2005).

Immigration and Competitiveness

Originally delivered November 16, 2005

In 1882, an Irish immigrant named Marcus Daly set off an explosion that shook the world. It happened 300 feet under the ground, near Warm Springs Creek, 26 miles west of Butte, MT. When the dust settled, Daly saw before him the shiny ore of the largest copper deposit ever known.

The rich copper vein transformed the American economy. It made America the world's largest copper exporter. And it inaugurated an economic boom for my home State that lasted for decades. It also enriched many parts of America.

Thousands of immigrants made the boom happen. They came from Ireland and Italy, Canada and Scandinavia, Serbia and Croatia, Greece and Syria. They came to America to find work in the new mining town, christened Anaconda. By 1900, immigrants made up 40 percent of Anaconda's population.

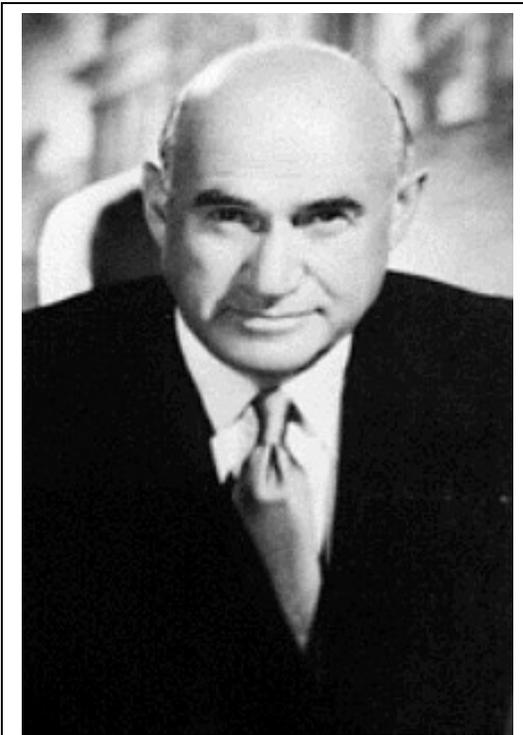
These new Americans formed the backbone of the mining economy. And their descendants have woven the colorful fabric of Montana.



Immigrants helped build the American economy. In the 1850s, hundreds of thousands of young Chinese men helped construct the Transcontinental Railroad. At the beginning in the 1870s, Basque shepherd immigrants helped shape the western ranching economy. Beginning in the 1890s, hundreds of thousands of Norwegian farmers lay the foundations of a competitive farming economy in Wisconsin, Iowa, Minnesota,

and the Dakota territories. And in the first decades of the 20th century, more than 100,000 Jewish immigrants created New York City's famous garment industry.

Immigrant entrepreneurs and innovators revolutionized the American economy. Scottish-born industrialist Andrew Carnegie transformed the American steel industry and consolidated the Nation's railroads. Hungarian-born Joseph Pulitzer produced a legacy in newsprint. Polish-born producer Samuel Goldwyn left his mark on film.



Samuel Goldwyn

Once-foreign names became American household brands. Russian-born Max Factor made makeup. Bavarian-born Levi Strauss manufac-

tured clothes. Hessian-born Adolphus Busch brewed beer.



Levi Strauss

And today, immigrant innovators still populate the cutting edge. Moscow-born Sergey Brin helped found Google. Taiwan-born Jerry Yang founded Yahoo. French-born Pierre Omidyar founded eBay. And Hungarian-born Andy Grove founded Intel.

America remains a nation of immigrants. More than 33 million people living in America were born abroad. More than 9 million came to our shores just between 1990 and 2000.

Since colonial times, immigrants have been vital to the American economy. Their skills and their labor have made our companies, our indus-

tries, and our economy more competitive.

Some immigrants come with little more than their strength and ambition. They become our economy's machine operators, factory workers, farm laborers, and service workers.

But many come with master's and doctorate degrees. They work in research laboratories and universities. They sharpen our economy's cutting edge.

This is my seventh address to the Senate on economic competitiveness. Since summer, I have highlighted the importance to competitiveness of education, international trade, health-care, national savings, and energy — all components we must focus on to make our country more competitive so we have better high-paying jobs and more paying jobs for more Americans. Today, I speak about immigration and economic competitiveness.

Immigrants make our economy more competitive in at least four ways.

First, immigrants provide labor. Marcus Daly needed workers to dig his Montana copper mine. Similarly, today's booming industries require global talent.

Without foreign-born workers, the largest economic expansion in our Nation's history would not have been

possible. In the boom years of the 1990s, the labor force grew by nearly 17 million workers. Nearly 40 percent of them were born abroad. Most of these immigrants came when unemployment was at record lows. They filled 4 out of 10 job vacancies, often in regions short on workers, and often in jobs that natives had no desire to fill. Had these immigrants not lent us their strength, our economy would surely have faltered.

Second, immigrants help balance the budget. Tally up taxpayer-funded benefits to immigrants — education, health-care, social security — and match those costs against what immigrants pay in State, local, and Federal taxes. On balance, each immigrant provides a net benefit to the American economy of about \$90,000 in taxes over a lifetime. Overall, immigrants contribute \$15 billion to our economy every year.

And immigrants will make an important fiscal contribution as the baby boom generation retires. In just 5 years, the number of Americans approaching retirement will increase by nearly half. Most new foreign-born immigrants, on the other hand, are between 10 and 39 years old. And immigrants are likely to have more children than the U.S.-born population.

These younger workers will help fund the coming Social Security, Medicare, and Medicaid benefit payments. Immigrants bolster the deteriorating ratio of workers to retir-

ees. Immigrants provide a shiny vein of ore in a graying economy.

Third, immigrants push the envelope of innovation. Foreign students earn more than a quarter of the Nation's science and engineering degrees. They earn more than a third of science and engineering doctorates. Most of those are in computer sciences and electrical engineering. Foreign students account for as many as four out of five doctoral students in a number of highly-ranked universities. And foreign students bring \$13 billion a year to our economy in tuition and fees.

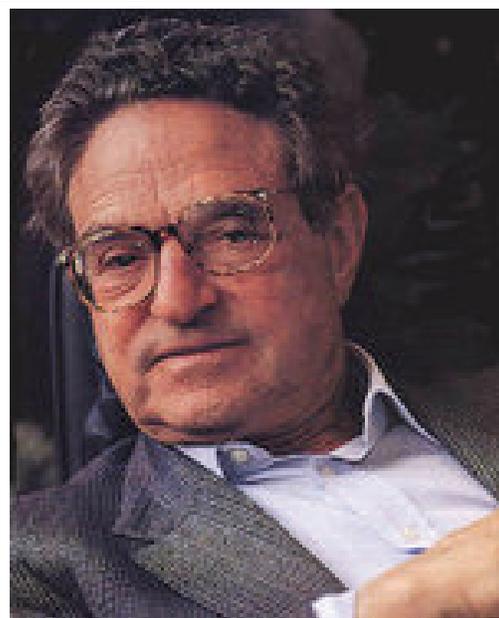
Foreign students' minds help sharpen our economy's cutting edge. Foreign student researchers support work on new medicines, software, and other innovations. Universities patent this research. A 10 percent increase in the number of foreign graduate students would increase patents granted by more than 7 percent.

Patents mean new inventions. Inventions mean new products. And new products mean new profits and new jobs.

Just as important, nearly three-quarters of highly-skilled students stay in America. Instead of taking their skills home and using them to compete with us, they join highly specialized professions in research and academia. They contribute their knowledge to our economy.

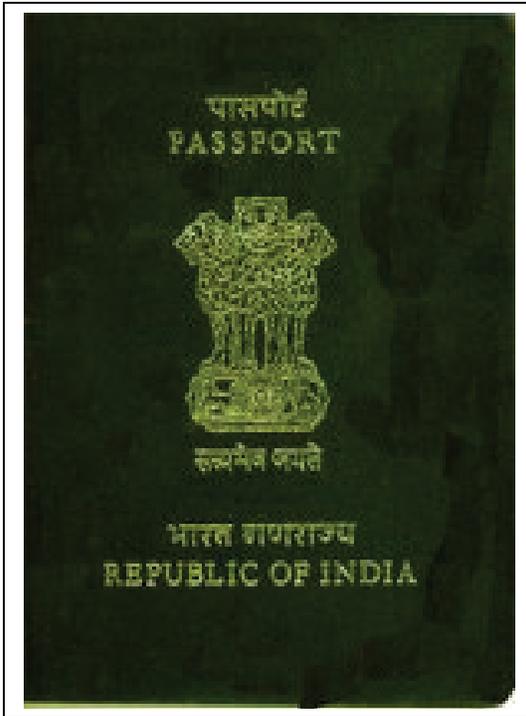
At IBM Research and Intel, for example, foreign nationals make up about a third of high-level researchers. At the National Institutes of Health, foreign-born workers make up about half of researchers. In America's top immigration States, foreign-born workers account for 40 percent of teachers and more than a quarter of physicians, chemists, and economists.

Fourth, immigrants drive entrepreneurship. Entrepreneurship is the irreplaceable genius that sparks economic growth. For every famous immigrant entrepreneur like Hungarian-born financier George Soros or Belgian-born designer Liz Claiborne, legions of other immigrants push the limits of the economy, or simply provide a neighborhood service.



George Soros

For more than a century, immigrants have been more likely than native-born Americans to be self-employed entrepreneurs. Since the 1970s, immigrants have helped reverse a national decline in self-employment. Immigrant-run businesses create jobs, tax revenues, and growth. Even small neighborhood businesses can revitalize entire neighborhoods. And small businesses are the primary driver of new jobs.



Immigrants also swell the ranks of high-technology entrepreneurs. Most of the foreign-born scientists and engineers in Silicon Valley have helped found or run a start-up company. Sixty percent of Indian scientists there have participated in start-ups. And fully three-quarters of Indians and most of the Chinese scientists there have plans to start a business.

These entrepreneurs are thinking about tomorrow's economy today.

Immigrants devote their labor. They boost our balance sheets. They drive innovation. And they energize entrepreneurship. Immigrants are vital to our economic competitiveness.

Unfortunately, America is not welcoming global talent and labor. In some cases, we have pulled in welcome mat.

State Department visa procedures and security checks intended to keep out terrorists are instead keeping out talent. In the post-September 11 world, America must vigilantly protect its borders. But we must also strike a balance between this vigilance and economic health.

Look at the case of foreign students who want to study at American universities. In 2003, foreign applications to American engineering doctoral programs fell by more than a third — with Chinese applications dropping nearly in half. Despite considerable efforts to reverse this trend, total foreign graduate school applications declined further last year, by double digits in some cases.

The decline in applications is not an anomaly. It is a clear trend. At the same time, our economic rivals are actively attracting the world's brightest. Canada doubled its foreign student enrollment last year. And South Korea will triple its foreign student enrollment by 2010.

We unfortunately have also closed the door on talented workers who drive our companies' competitiveness. Our leading high-tech companies — companies like Intel, Microsoft, and Hewlett-Packard — are imploring Congress to raise the cap for visas for highly-skilled workers. These visas are known as H-1B visas. They are capped at 65,000. That limit is so out of line with demand that we reached the 2005 cap months before 2005 began.

Today's visa and immigration restrictions also make it difficult for major American companies to employ and train their workforce.

Take this example: A global American entertainment company with headquarters in New York hired Indian managers to run its Bangalore office. The company wanted to train these new hires to company standards, as it does with all employees. The company wanted to send the new hires to New York to receive this training, as it does with all management. The company applied for visas on behalf of its soon-to-be Indian office managers.

What happened? The company filed the paperwork. Months came. Months went. It took 3 months just to get an appointment at the U.S. Embassy. Delays continued. Patience wore thin. Costs mounted, with untrained managers on the payroll. And the company finally gave up.

The company applied for visas to Ireland, where the company had its European branch. The visas came in 4 days. The company trained these new managers at the company's facilities in Ireland, and then sent them back to India to work. This created jobs in Ireland, because the company set up a training program there instead of using existing trainers in America.

This is no way to do business. We are shooting ourselves in the foot.



We must lift the cap on H-1B visas. We do not have a centrally planned economy. The American Government does not tell companies how many workers they need each year. But the cap has that effect, the effect of a centrally planned economy. That is wrong. Let us listen to business leaders and help them maintain and improve their competitiveness. When our premier global companies implore us to lift the H-1B visa cap or risk hampering their growth, the time for politics is over.

We must simplify temporary entry for foreign workers who need to come to America to help our companies succeed. If we wish to remain a cutting-edge economy, we can no longer obstruct companies from training their overseas employees, participating in meetings and conferences, or traveling to trade shows. Our companies have global markets, global supply chains, and global strategies. We need a global workforce.

Our current commitment of 65,000 H-1B visas each year is outdated. It is outmoded and out of touch with today's needs. We should make a bold commitment to expand that cap. Such a commitment would allow us to lock in similar commitments from our trading partners and enhance exports and American services.



We must actively encourage talented foreign students to study, do

research, and innovate at American universities and American research institutions. Visa renewals during multiyear studies need to be routine. These renewals should not require all students to first return to their home countries.

For the most exceptional of these students, who have earned advanced science degrees at American universities, we need a simpler process to obtain permanent residence. These are talented, highly educated individuals, who are in a position to keep our economy competitive. If we do not welcome them into our economy, guess what? China, India, Europe, or Japan will welcome them into theirs.

Three weeks ago, the National Park Service designated the old mining town of Anaconda, MT, as a national historic landmark. Anaconda's mining boom times are now preserved as part of our Nation's history. But Marcus Daly's explosion — when he found all that copper ore — continues to reverberate through the American economy today.

Let us not stamp out the spark of future booms. Let us, rather, welcome the labor, the innovation, and the entrepreneurship of our new immigrants. Let us ensure for ourselves and for our children the shining ore of boom times to come.

151 CONG. REC. S12,934-36 (daily ed. Nov. 16, 2005).

A New American Renaissance

Originally delivered December 13, 2005

Toward the end of the 14th century, Emperor Manuel II Palaeologus ruled a waning Byzantine Empire. Looking across the Bosphorus, he saw a growing threat from the Moslem Ottoman Turks. In 1390, he sent an embassy up the Adriatic Sea to Venice to build alliances. And to head the mission, he named the 35-year-old Manuel Chrysoloras.

Although his embassy to Venice did not prosper, Chrysoloras' reputation did. And in 1396, the chancellor of the University of Florence invited him there to teach Greek. The chancellor wrote: "[W]e firmly believe that both Greeks and Latins have always taken learning to a higher level by extending it to each other's literature." Chrysoloras accepted.

But no one in Italy had studied Greek for 700 years. Chrysoloras began. He taught Greek in Florence, Bologna, Venice, and Rome. He translated Homer and Plato. He wrote the first basic Greek grammar in Western Europe.



Florence

As the early renaissance poet Dante Alighieri wrote in *The Divine Comedy*, “A great flame follows a little spark.” The flame of learning spread through the rest of Europe, reconnecting the West with classical antiquity, experimentalism, and the desire to live well.

Chrysoloras and scholars like him helped to begin the scientific revolution and artistic transformation that would become known as the Italian Renaissance. Europe emerged from the backwater. Commerce and exploration burst forth. The Modern Age began.

Renaissance historian Matteo Palmieri exhorted a fellow Italian of the mid 15th century to “[t]hank God that it has been permitted to him to be born in this new age, so full of hope and promise, which already rejoices in a greater array of nobly-gifted souls than the world has seen in the thousand years that have preceded it.”

With the Renaissance, Western Europe began its domination of the world economy. The West has held this power so long that it is easy — especially for us here in the West — to take it for granted. But it need not have been so.

In the century leading up to the year 1000, Moorish Spain could claim a far more advanced civilization than that of Christian Italy. Cordoba’s streets were paved and lit. Cordoba had 300 public baths and 70 libraries. Cordoba’s great central li-

brary alone held 400,000 books — more than all of France. The Arab postal service delivered regular mail as far as India. Arab civilization was internally creative. And Arab thinkers of the time were open to Persian and Indian science, as well.



Cordoba

In the 12th century, an English scholar named Adelard of Bath traveled through the Islamic lands of Spain, North Africa, and Asia Minor. Adelard reported: “The further south you go, the more they know. They know how to think.”

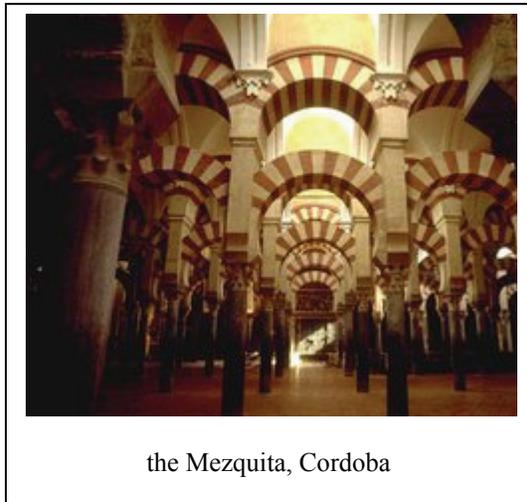
And Adelard carried back from the south a way of thinking. He said: “Although man is not armed by nature, nor is naturally swiftest in flight, yet he has something better by far — reason.”

The advanced Moorish state suffered civil conflict and fell to the less-developed Christian states of Europe. Finally, on January 2, 1492, the leader of the last Muslim stronghold in Granada surrendered to armies of a resurgent, newly-united Christian Spain. The remaining Spanish Muslims were forced to leave Spain or convert to Christianity.

At the end of the first millennium, Arab Spain had the most advanced science and economy of its day. But in the centuries that followed, it fell to a newly-emergent Western Europe.

At the end of the first millennium, Western Europe slumbered in its Dark Ages. But in the next centuries, it emerged into the Renaissance.

We here today inherit the legacy of the Italian Renaissance. We have absorbed the learning of the Arab Caliphates. And we inhabit the land made known to Europeans by another voyage of 1492.



At the end of the second millennium, America has the most advanced science and economy of our day. But we cannot take that leadership for granted.

In the centuries ahead, if America wishes to remain the most advanced economy of our day, we will need to create a new American renaissance.

We need this new American renaissance, because leadership does not come from continuing to do what we do already. Smart people in China and India and around the globe are quickly learning how to do what we do now. And people in China and India and around the globe will be able to do it more cheaply.

Instead, leadership comes from constant innovation. Leadership comes from rapidly adjusting what we do to what the market demands. And leadership comes from serving the customer. Fortunately, these are characteristics at which Americans excel.

This is my eighth Senate floor statement this year on competitiveness. I began in June with a general statement on competitiveness and America's place in the world. In June, I also spoke of education and competitiveness. In July, I spoke of trade and competitiveness and health care and competitiveness. In September, I spoke of savings and competitiveness. In October, I spoke of energy and competitiveness. In November, I spoke of immigration and competitiveness. And today, I conclude this series of addresses with this discussion of the need for the new American renaissance.

My message is this: To foster this continuing American renaissance, American government cannot stand idly by. Remaining economically competitive will require action. Let me summarize my six-step agenda

for action. This is what we need to do:

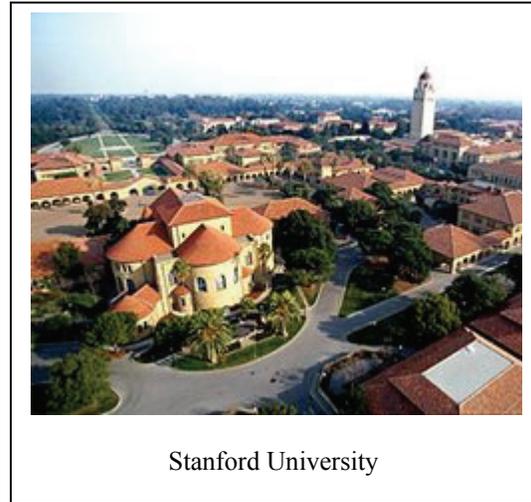
First, we must improve education. The Italian Renaissance relied on the learning of the Greeks that Manuel Chrysoloras helped to spread. The new American renaissance will rely on our having the best educated workforce of the centuries to come.

We need to ensure that children come to school ready to learn. We need to ensure that children have modern and well-equipped schools. And we need to ensure that children have small classes.

We should raise salaries for teachers in poor schools by 50 percent. We should raise the salaries of top-performing teachers and teachers in math, science, and languages by another 50 percent.

We can ensure quality after-school programs. We can lengthen the school year.

We must support community colleges and link them more strongly to workforce opportunities. We must expand Pell Grants. We must improve, consolidate, and expand education tax incentives. We must expand and extend the deduction for tuition expenses. We must increase scholarships and loan forgiveness for science and engineering students. We must expand the Hope and Lifetime Learning credits.



We need to make it possible for non-traditional students to obtain an education. We need to retrain workers whose jobs are lost to trade and help them reenter the workforce.

We should make it easier, consistent with the requirements of national security, for foreign students to study in America.

We should make visa renewals during multiyear studies routine. And we should change visa renewal requirements policies that are now contingent on students' return to their home countries.

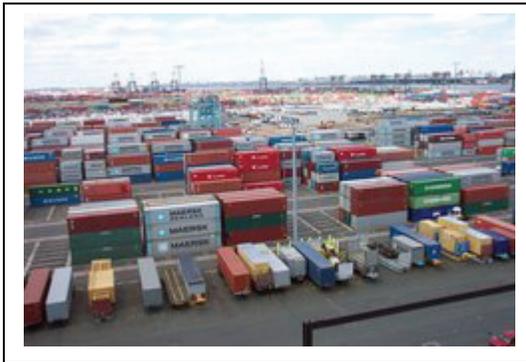
Second, we must foster research. For it was discovery that helped bring about the renaissance.

We need to reward innovation and risk-taking. We need to fully fund research support organizations like the National Science Foundation, the

National Institutes of Health, and the Office of Science at the Department of Energy. We need to simplify and make permanent the R&D tax credit.

We should encourage talented foreign students to study, research, and innovate at American universities and research institutions. And we should simplify the permanent residence process for exceptional foreign students with advanced science degrees from American universities.

Third, we have to advance international trade. Insularity characterized the Dark Ages. The Renaissance spread from an international spark. And the ensuing blaze of international commerce brought on the Modern Age.



We must open new markets for American exports worldwide. We must improve enforcement of existing trade agreements. We must do more to defend American intellectual property rights. And we must prompt China to further loosen its currency.

We should look more to Asia for bilateral agreements. We should advance regional trade agreements in Asia. We should seek out further sectoral agreements such as the WTO's Information Technology Agreement. And we should launch an initiative in the advanced medical equipment sector.

We need to expand trade adjustment assistance to service workers. And we need to expand wage insurance.

We can make it easier for major American companies to employ and train their overseas employees. And we can facilitate international participation in meetings and conferences and travel to trade shows.

Fourth, we must address the burden that high health-care costs place on American business. And we must help provide health insurance to those who do not have it.

We can provide health insurance tax credits to small employers. We can fund employer-based group-purchasing pools. We can increase funding for high-risk pools. We can expand Medicaid and the State Children's Health Insurance Program. We can permit a Medicare buy-in for the near-elderly.

We need to facilitate the use of health information technology — IT. We need to use health IT to link

medication administration to a patient's clinical information. We need to foster standards for the interoperability of health IT systems. We need to improve health-care providers' ability to exchange clinical data. And we need to provide loans and grants to encourage the use of health IT. The Senate has passed legislation this session to further many of these health IT goals. The House must do it, too, and move quickly to provide higher Medicare reimbursements and work to improve quality of care, known as "pay-for-performance."

We should provide higher Medicare reimbursements to providers working to improve the quality of delivered care. And we should coordinate senior care to ensure adequate preventive care and chronic condition management. This year's Senate-passed spending reconciliation bill took the first steps toward pay-for-performance. Although there is much in that bill that gives me pause, we should enact those pay-for-performance changes.

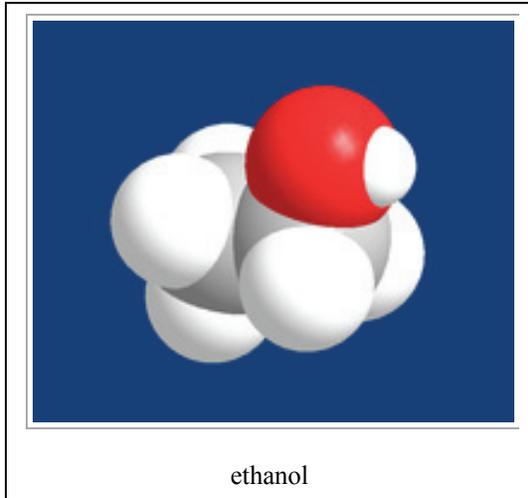
Fifth, we must increase national savings to finance the investment and innovation of the next renaissance.

We need to plug the biggest leak in our national savings pool: the federal budget deficit. We need to truthfully report current and future Federal Government spending needs. We need to restore pay-as-you-go rules for both entitlement spending and tax cuts.

We should reduce the annual tax gap. We should eliminate wasteful and unnecessary spending. We should eliminate wasteful and unfair tax breaks, such as abusive tax shelters and corporate tax loopholes. And we should slow the growth in health-care costs.

We can increase private savings. We can improve financial education. We can encourage automatic enrollment of eligible workers in retirement savings plans. We can bring payroll-deduction retirement savings to private sector workers lacking 401(k)s or similar plans. We can make incentives for saving more progressive. And we can extend the Savers' Credit and expand it to Americans with no income tax liability.

Sixth, for a modern renaissance, we must address the need for sustainable and environmentally compatible sources of energy.



We can launch a new “Manhattan Project” to develop clean alternative energies. We can foster the use of hydrogen and fuel cells. We can foster wind energy. We can make a clear commitment to the development of biomass and ethanol-based fuels.

We should encourage energy R&D through research grants to industry and educational institutions and tax incentives for R&D. We should offer prizes to spur innovation.

We need an investment tax credit for coal gasification technology. We need a tax credit for companies that generate fuel using an updated version of the Fischer-Tropsch process. And we need a Federal loan guarantee so that companies can finance these capital investments. This year’s energy and highway bills addressed some of these needs.

Taken together, these policies form a bold agenda to advance American competitiveness. They can help maintain American economic leadership in the world. And they can help to preserve high-wage American jobs here at home.

Beginning next month, I will introduce a comprehensive 2006 legislative package to strengthen America’s competitiveness in a changing world. This package will encompass several bills that cover the many aspects of competitiveness. I invite my colleagues to join me in this effort.



The early Renaissance poet, Dante Alighieri, embodied the spirit of his times when he wrote in *The Divine Comedy* that people “were not born to live like brutes, but to follow virtue and knowledge.”

And from that grounding of virtue and knowledge flowed naturally Dante's description: "And thence we came forth, to see again the stars."

Let us follow virtue and knowledge and foster a new American renaissance. Let us strengthen America's competitiveness in a changing world. And let America again go forth, toward the stars.

151 CONG. REC. S13,486-88 (daily ed. Dec. 13, 2005).

Staff Contacts

<i>Press inquiries</i>	Carol Guthrie	Carol_Guthrie@finance-dem.senate.gov
<i>Project co-ordinator</i>	Bill Dauster	Bill_Dauster@finance-dem.senate.gov
<i>Education</i>	Sara Roberts Stacey Gordon Judy Miller Brian Pomper	Sara_Roberts@baucus.senate.gov Stacey_Gordon@baucus.senate.gov Judy_Miller@finance-dem.senate.gov Brian_Pomper@finance-dem.senate.gov
<i>Research</i>	Sara Roberts Stacey Gordon Pat Heck Melissa Mueller	Sara_Roberts@baucus.senate.gov Stacey_Gordon@baucus.senate.gov Pat_Heck@finance-dem.senate.gov Melissa_Mueller@finance-dem.senate.gov
<i>Trade</i>	Brian Pomper Demetrios Marantis Janis Lazda	Brian_Pomper@finance-dem.senate.gov Demetrios_Marantis@finance-dem.senate.gov Janis_Lazda@finance-dem.senate.gov
<i>Health Care</i>	Diana Birkett Pat Bousliman	Diana_Birkett@finance-dem.senate.gov Pat_Bousliman@finance-dem.senate.gov
<i>Savings</i>	Judy Miller Janis Lazda Alan Cohen	Judy_Miller@finance-dem.senate.gov Janis_Lazda@finance-dem.senate.gov Alan_Cohen@finance-dem.senate.gov
<i>Energy</i>	John Angell Matt Jones Alan Cohen Will Larson Chelsea Thomas	John_Angell@finance-dem.senate.gov Matt_Jones@finance-dem.senate.gov Alan_Cohen@finance-dem.senate.gov Will_Larson@finance-dem.senate.gov Chelsea_Thomas@finance-dem.senate.gov
<i>Immigration</i>	Janis Lazda	Janis_Lazda@finance-dem.senate.gov