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From the Academy

On January 22, 1999, President Clinton delivered the following address at the National Academy of Sciences in Washington, DC. The President announced initiatives to strengthen America's defenses against the threats posed by biological and chemical weapons, and attacks to the nation's infrastructure, computer systems, and networks. His address is preceded by introductory remarks from Joshua Lederberg, President Emeritus of the Rockefeller University in New York.

Keeping America Secure for the 21st Century

Joshua Lederberg

For over a half-century, I have had the joy and excitement of research on the microbial world: its evolution, the conspiracies it harbors in its ambiguous competition with the human species. There have been many occasions in this very hall to share news of profound scientific discoveries which not only broadened our conceptual understanding of ourselves and our biological extended family, but gave us ever sharper tools to deal with pestilence and decay.

But throughout that time, I have been imbued with fear, that, just as happened with physics and chemistry, great advances in medicine would be turned into engines of war.

That fear has been compounded by the deterioration of civil order that might otherwise restrain the use of weapons of mass destruction; and by the ease with which nature already provides the germs of disease that might be used as weapons. In fact, the very triumph of the democratic world's military technology with guided missiles and dominance of the battlefield drives the agents of disorder to more subversive means of attack and inspires new scales of terrorism grand and small. We have made great progress diplomatically and in international law with the prohibitions against biological and chemical weapons—though there is some way to go in their enforcement. However our civilian populations have until now been almost undefended against bioterrorism—in an era when political disorder weakens the system of deterrence that had been our main shield thoughout the Cold War.

The reconstruction of bio-defenses must be regarded as a branch of public health, and it is equally necessary to deal with cyclic renewals of historic natural plagues, as much as with those borne of malice.

So it has been extremely gratifying that, during the past year these concerns, voiced so persuasively by many of my colleagues here at the Academy and the Institute of Medicine, have reached the attention of the highest levels of government, and action plans have been embodied in several executive orders and in the budgetary proposals the President will discuss this morning.

William Jefferson Clinton

I was so relieved that Dr. Lederberg not very long ago—well, last year—brought a distinguished panel of experts together to discuss this bioterrorism threat, because I then had experts to cite on my concern and nobody thought I was just reading too many novels late at night.

Madame Attorney General, Secretary Shalala, Secretary Richardson, Director Witt, Deputy Secretary Hamre, Commandant of the Coast Guard and our other military leaders who are here, Mr. Clarke, ladies and gentlemen. I'm delighted to be here to discuss this subject. With some trepidation, Sandy Berger noted that Dr. Lederberg won a Nobel Prize at 33, and I was governor—you can infer from that that I was not very good at chemistry and biology.

But any democracy is imbued with the responsibility of ordinary citizens who do not have extraordinary expertise to meet the challenges of each new age. And that is what we are all trying to do. Our country has always met the challenges of those who would do us harm. At the heart of our national defense I have always believed is our attempt to live by our values—democracy, freedom, equal opportunity. We are working hard to fulfill these values at home. And we are working with nations around the world to advance them, to build a new era of interdependence where nations work together—not simply for peace and security, but also for better schools and health care, broader prosperity, a cleaner environment and a greater involvement by citizens everywhere in shaping their own future.

In the struggle to defend our people and values and to advance them wherever possible, we confront threats both old and new—open borders and revolutions in technology have spread the message and the gifts of freedom but have also given new opportunities to freedom's enemies. Scientific advances have opened the possibility of longer, better lives. They have also given the enemies of freedom new opportunities.

Last August, at Andrews Air Force Base, I grieved with the families of the brave Americans who lost their lives at our embassy in Kenya. They were in Africa to promote the values America shares with friends of freedom everywhere—and for that they were murdered by terrorists. So, too, were men and women in Oklahoma City, at the World Trade Center, Khobar Towers, on Pan Am 103.

The United States has mounted an aggressive response to terrorism—tightening security for our diplomats, our troops, our air travelers, improving our ability to track terrorist activity, enhancing cooperation with other countries, strengthening sanctions on nations that support terrorists.

Since 1993, we have tripled funding for FBI anti-terrorist efforts. Our agents and prosecutors, with excellent support from our intelligence agencies, have done extraordinary work in tracking down perpetrators of terrorist acts and bringing them to justice. And as our air strikes against Afghanistan—or against the terrorist camps in Afghanistan—last summer showed, we are prepared to use military force against terrorists who harm our citizens. But all of you know the fight against terrorism is far from over. And now, terrorists seek new tools of destruction.

Last May, at the Naval Academy commencement, I said terrorist and outlaw states are extending the world's fields of battle, from physical space to cyberspace, from our earth's vast bodies of water to the complex workings of our own human bodies. The enemies of peace realize they cannot defeat us with traditional military means. So they are working on two new forms of assault, which you've heard about today: cyber attacks on our critical computer systems, and attacks with weapons of mass destruction—chemical, biological, potentially even nuclear weapons. We must be ready—ready if our adversaries try to use computers to disable power grids, banking, communications and transportation networks, police, fire and health services—or military assets.

More and more, these critical systems are driven by, and linked together with, computers, making them more vulnerable to disruption. Last spring, we saw the enormous impact of a single failed electronic link, when a satellite malfunctioned—disabled pagers, ATMs, credit card systems and television networks all around the world. And we already are seeing the first wave of deliberate cyber attacks—hackers break into government and business computers, stealing and destroying information, raiding bank accounts, running up credit card charges, extorting money by threats to unleash computer viruses.

The potential for harm is clear. Earlier this month, an ice storm in this area crippled power systems, plunging whole communities into darkness and disrupting daily lives. We have to be ready for adversaries to launch attacks that could paralyze utilities and services across entire regions. We must be ready if adversaries seek to attack with weapons of mass destruction, as well. Armed with these weapons, which can be compact and inexpensive, a small band of terrorists could inflict tremendous harm.

Four years ago, though, the world received a wake-up call when a group unleashed a deadly chemical weapon, nerve gas, in the Tokyo subway. We have to be ready for the possibility that such a group will obtain biological weapons. We have to be ready to detect and address a biological attack promptly, before the disease spreads. If we prepare to defend against these emerging threats we will show terrorists that assaults on America will accomplish nothing but their own downfall.

Let me say first what we have done so far to meet this challenge. We've been working to create and strengthen the agreement to keep nations from acquiring weapons of mass destruction, because this can help keep these weapons away from terrorists, as well. We're working to ensure the effective implementation of the Chemical Weapons Convention; to obtain an accord that will strengthen compliance with the biological weapons convention; to end production of nuclear weapons material. We must ratify the Comprehensive Test Ban Treaty to end nuclear tests once and for all.

As I proposed Tuesday in the State of the Union Address, we should substantially increase our efforts to help Russia and other former Soviet nations prevent weapons material and knowledge from falling into the hands of terrorists and outlaw states. In no small measure we should do this by continuing to expand our cooperative work with the thousands of Russian scientists who can be used to advance the causes of world peace and health and well-being, but who if they are not paid, remain a fertile field for the designs of terrorists.

But we cannot rely solely on our efforts to keep weapons from spreading. We have to be ready to act if they do spread. Last year, I obtained from Congress a 39 percent budget increase for chemical and biological weapons preparedness. This is helping to accelerate our ongoing effort to train and equip fire, police and public health personnel all across our country to deal with chemical and biological emergencies. It is helping us to ready armed forces and National Guard units in every region to meet this challenge; and to improve our capacity to detect an outbreak of disease and save lives; to create the first ever civilian stockpile of medicines to treat people exposed to biological and chemical hazards; to increase research and development on new medicines and vaccines to deal with new threats.

Our commitment to give local communities the necessary tools already goes beyond paper and plans. For example, parked just outside this building is a newly designed truck we have provided to the Arlington, Virginia, Fire Department. It can rapidly assist and prevent harm to people exposed to chemical and biological dangers.

But our commitment on the cyber front has been strong, as well. We've created special offices within the FBI and the Commerce Department to protect critical systems against cyber attack. We're building partnerships with the private sector to find and reduce vulnerabilities; to improve warning systems; to rapidly recover if attacks occur. We have an outstanding public servant in Richard Clarke, who is coordinating all these efforts across our government.

Today, I want to announce the new initiatives we will take, to take us to the next level in preparing for these emerging threats. In my budget, I will ask Congress for $10 billion to address terrorism and terrorist-emerging tools. This will include nearly $1.4 billion to protect citizens against chemical and biological terror—more than double what we spent on such programs only two years ago.

We will speed and broaden our efforts, creating new local emergency medical teams, employing in the field portable detection units the size of a shoe box to rapidly identify hazards; tying regional laboratories together for prompt analysis of biological threats. We will greatly accelerate research and development, centered in the Department of Health and Human Services, for new vaccines, medicines and diagnostic tools.

I should say here that I know everybody in this crowd understands this, but everyone in America must understand this: the government has got to fund this. There is no market for the kinds of things we need to develop; and if we are successful, there never will be a market for them. But we have got to do our best to develop them. These cutting-edge efforts will address not only the threat of weapons of mass destruction, but also the equally serious danger of emerging infectious diseases. So we will benefit even if we are successful in avoiding these attacks.

The budget proposal will also include $1.46 billion to protect critical systems from cyber and other attacks. That's 40 percent more than we were spending two years ago. Among other things, it will help to fund four new initiatives. First, an intensive research effort to detect intruders trying to break into critical computer systems. Second, crime detection networks, first for our Defense Department, and later for other key agencies so when one critical computer system is invaded, others will be alerted instantly. And we will urge the private sector to create similar structures.

Third, the creation of information centers in the private sector so that our industries can work together and with government to address cyber threats. Finally, we'll ask for funding to bolster the government's ranks of highly skilled computer experts—people capable of preventing and responding to computer crises.

To implement this proposal, the Cyber Corps program, we will encourage federal agencies to train and retrain computer specialists, as well as recruiting gifted young people out of college.

In all our battles, we will be aggressive. At the same time I want you to know that we will remain committed to uphold privacy rights and other constitutional protections, as well as the proprietary rights of American businesses. It is essential that we do not undermine liberty in the name of liberty. We can prevail over terrorism by drawing on the very best in our free society—the skill and courage of our troops, the genius of our scientists and engineers, the strength of our factory workers, the determination and talents of our public servants, the vision of leaders in every vital sector.

I have tried as hard as I can to create the right frame of mind in America for dealing with this. For too long the problem has been that not enough has been done to recognize the threat and deal with it. And we in government, frankly, weren't as well organized as we should have been for too long. I do not want the pendulum to swing the other way now, and for people to believe that every incident they read about in a novel or every incident they see in a thrilling movie is about to happen to them within the next 24 hours.

What we are seeing here, as any military person in the audience can tell you, is nothing more than a repetition of weapons systems that goes back to the beginning of time. An offensive weapons system is developed, and it takes time to develop the defense. And then another offensive weapon is developed that overcomes that defense, and then another defense is built up—as surely as castles and moats held off people with spears and bows and arrows and riding horses, and the catapult was developed to overcome the castle and the moat.

But because of the speed with which change is occurring in our society—in computing technology, and particularly in the biological sciences—we have got to do everything we can to make sure that we close the gap between offense and defense to nothing, if possible. That is the challenge here.

We are doing everything we can, in ways that I can and in ways that I cannot discuss, to try to stop people who would misuse chemical and biological capacity from getting that capacity. This is not a cause for panic—it is a cause for serious, deliberate, disciplined, long-term concern. And I am absolutely convinced that if we maintain our clear purpose and our strength of will, we will prevail here. And thanks to so many of you in this audience, and your colleagues throughout the United States, and like-minded people throughout the world, we have better than a good chance of success. But we must be deliberate, and we must be aggressive.