Kick-off Event Remarks
Presented by
Shirley Ann Jackson, Ph.D.
President, Rensselaer Polytechnic Institute
Challenger Learning Center Kick
Proctor's Theatre
Schenectady, NY
Tuesday, May 2, 2006
7:00 p.m. to 9:00 p.m.

Thank you, Jack, for your kind introduction. It is a real honor to be here tonight on behalf of the Challenger Learning Center Program, and to speak about a concern which is fundamental to both its mission—a new generation of explorers—and to the mission of Rensselaer Polytechnic Institute. As the oldest, private technological research university in the country, Rensselaer long has been a leader in technology-based education and, like the Challenger Program, emphasizes the pursuit of discovery.

The hands-on, multidisciplinary approach which Rensselaer takes to undergraduate education and our emphasis on interactive learning is analogous to the intellectual engagement around which the Challenge Learning Center Program is designed. Just imagine: the Capital Region's Challenger Center will have the capacity to "fly" 300 scientific missions each year with middle school students. With each mission involving 30 to 35 students, that is more than 10,000 students annually. Each Challenger flight begins and ends in the classroom, with pre- and post-mission curricula which meet all of New York State's educational standards.

At the Center, two separate state-of-the-art flight simulator modules resemble NASA's Mission Control operation in Houston, and the interior of a Space Station in orbit. It is this kind of hands-on experience which opens young minds to the limitless possibilities available through science and technology.

As scores on international science and mathematics examinations consistently demonstrate, it is clear that we have failed to excite and inspire our young people to achieve at the highest levels. But, studies at other Challenger Learning Centers have shown a nearly 50 percent improvement in math and science grades, and the pursuit of college-level technology tracks for participants in the program.

The Challenger Program offers the potential for students to be seized by the same fever which the Soviet launch of the Sputnik satellite in 1957 ignited in an earlier generation. It gives us a way to capture imaginations, much as President Kennedy's promise to put a man on the moon in the 1960s captured the imaginations of the young people who eventually became today's innovators. The Challenger Program can spark a child's dreams and provide the link between them and what it takes to become one of the Rensselaer alumni who worked on the 2003 Mars Exploration Rover Mission, took part in the Apollo program of the 1960s and 1970s, the first Mars rover, space shuttle experiments, and solar system research, as well as other arenas where science and engineering, mathematics and technology hold sway.

The commitment of the Challenger Program to advancing the pursuit of science as a national model, and locally in the capital region, and the role it plays in encouraging more of our children to choose math- and science-related career paths is critically important, perhaps now more so than ever.

This is because programs and organizations like the Challenger Center play an important role in stemming the tide of what I call the "Quiet Crisis"—that is, the converging trends which are eroding the ability of the United States to sustain its competitive edge in scientific research and innovation, trends which are re-shaping our concepts of security, development, and even national sovereignty.

Leading these trends is the fact that our federal investment in basic research has declined by half since 1970, as a percent of Gross Domestic Product (GDP). In addition, we know that there is an insufficient number of young scholars in our nation's science

and engineering "pipeline" to replace the highly skilled science and engineering professionals who will retire in the next five to ten years.

Another trend is the slowing, by U.S. immigration policies and new opportunities abroad, of the flow of international students, scientists, and engineers who long have been an important source of skilled talent for the U.S. science and engineering research enterprise.

And finally, our national demographics have shifted. Young women and ethnic and minority youth now account for more than half of the population. These youth traditionally have been underrepresented in science, mathematics, engineering and technology, and today they hold only about a quarter of existing science, engineering, and technology positions. It is from this nontraditional group—this "new majority"—that the next generations of scientists and engineers must come.

It takes decades to prepare a professional scientist or engineer and the true impact of these trends will unfold only gradually, over time. This is the “quiet” part of the “Quiet Crisis.” The “crisis” we face is the lost potential for the discoveries, inventions, and innovations which create whole new industries, and mitigate the global scourges which make for human suffering and for geopolitical instability.

Energy security for this planet’s 6.5 billion people who are crowding the world's power generating capacity may, indeed, be one of the biggest global challenges of the 21st century. What are the alternatives to $3.00 per gallon gasoline? The stability which true global energy security would offer the world would be priceless.

But it will require major innovative advances to achieve this, and the development and exploitation of new technologies require people—bright, talented, inspired, engaged, highly educated people—who, of necessity, must be drawn from the complete talent pool—from the “new majority.” We cannot predict from where, and from

whom, the next great ideas will emerge—which is why innovation demands a virtual cauldron of diverse, smart, focused, disciplined, committed individuals who continually challenge each other.

Scientific discovery and technological innovation have fueled our national prosperity, and have driven our global leadership. Consider air transportation, atomic energy, jet and rocket propulsion, other space technologies, communications, television, computers, semiconductors, microchips, laser optics, fiber optics — developments which revolutionized life and spawned new industries.

But our country's ability to sustain its competitive edge is at stake. Globalization and globalizing technologies have led to a flattening world, and the resulting New World Order is asymmetrical and unstable, reflecting, and causing, a social divide. And, instability, of course, leads to conflict and terrorism.

And then, there is the arrival of the giants: India and China. Few countries have had more spectacular success in swiftly harnessing their human capital than India and China—although they still face daunting hurdles. Together, these two nations hold 40 percent of the world's population.

Other nations have observed the elements of our own success, and as their economies flower in the global ecosystem, they have ramped up investment in science and engineering research and development, and are investing in their own intellectual capital.

This is the global context for a new generation of explorers.

Nationally, a flurry of reports, issued by corporate, academic, and government entities, within the last one-to-two years, warning of the consequences to U.S. scientific and engineering innovation and leadership preeminence if we fail to act, show that a recognition of this is taking hold. Over the last months, members of both the U.S. House

of Representatives and the U.S. Senate, on both sides of the aisle, have introduced more than a dozen bills designed to improve America's ability to compete in the global economy.

And President Bush proposed his own spending and legislative proposal, the American Competitiveness Initiative (ACI) in his January State of the Union address.

This new national focus is encouraging, but we must remain watchful and make sure that every new program embraces the young women and ethnic minority youth who comprise the "new majority" of our changing demographics. And, we must see that the new programs recreate the excitement and the financial commitment that the nation exhibited after the launch of Sputnik.

It seems to me, then, that the Challenger Learning Center could not have arrived in the Capital District at a more auspicious time. And, while it is always risky to predict the future, there are two things I believe we can say with certainty:

1. The nation which secures the means for capturing and exploiting the best ideas, will lead in the 21st century.
2. Those ideas WILL be found.

The mission of the Challenger Learning Center responds to the call of the future. I encourage your support as a way to enhance our young people's potential as they become leaders in discovery and innovation. The Challenger Learning Center offers the kind of program which will help lead more of our young people to the competitive edge, and our nation to the forefront of scientific research and innovation.

Thank you.

~ END ~