

A Choice for Greatness

By Former Congressman Robert S. Walker

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In every generation, choices are made that lead to greatness or mediocrity. Tonight we honor men and women who, in our time, chose greatness. The Columbia astronauts will be remembered not for the tragedy that befell them, but for their individual choices to explore, to excite, to envision, to lead. They raised their sights toward the heavens and by their courage and dedication inspired us all to dream a little larger and believe in a broader destiny for all of humankind.

President Bush put it best in his remarks honoring the Columbia crew. He said, "The cause in which they died will continue. Mankind is led into the darkness beyond our world by the inspiration of discovery and the longing to understand. Our journey into space will go on."

In every generation, choices are made that lead to greatness or mediocrity. Among us tonight are the families of the Columbia crew whose strength in the face of tragedy and whose vision in the midst of grief has been an example of undaunted faith and resolute determination. How fortunate we are to have people such as these to remind us that heroism comes in many forms including the ability to lift the spirits of the Nation toward a greater good even in the throes of calamity.

In every generation, choices are made that lead to greatness or mediocrity. In this hall tonight are men and women of NASA who had to deal with the loss of Columbia personally and corporately. They had no time to grieve before being confronted with questions and investigation. And yet, as they wiped away their tears they made fateful decisions about the future of the space program, and time and again they chose the right course. We will go on because of the dedicated NASA family.

In every generation, choices are made that lead to greatness or mediocrity. Tonight in the desert of Iraq, our brave fighting forces are aided by space-based assets that allow us to shape the battlefield in ways never before imagined. We will defeat a brutal dictator who threatens this nation and the world because years ago visionary military planners created tools which allow space to be used for command, navigation and surveillance. Our national leadership can pursue important international objectives because of choices made by those who went before.

Obviously, I want to spend some time this evening thinking a little about history, choices, consequences, and generations. It is a time to consider history. This year we celebrate the 100th anniversary of powered, human flight; the 40th anniversary of the last Mercury mission; the 35th anniversary of Apollo 8; the 30th anniversary of Skylab and of Pioneer 10; the 20th anniversary of the first American woman and the first African American in space; and the fifth anniversary of the Mars Pathfinder.

And one more anniversary I'd like to note. This year, 31 years ago, the final moon-landing mission, Apollo 17, successfully completed our moon program. A choice was made. Our national goal of landing men on the moon and returning them safely was over. One of our nation's most glorious chapters would be closed. We would move on to other things.

I pondered that choice and many others during much of 2002 when I served as Chairman of the Commission on the Future of the United States Aerospace Industry. That panel was commissioned by the Congress and chartered by the President to study the challenges faced by our country in the aerospace arena and to recommend new policy options.

The challenges we found, are real. While our nation maintains a huge leadership advantage in military aerospace applications, (as our troops in Iraq are showing us daily), all across the world there are countries poised to wrest leadership away from us in vital areas such as commercial aviation, air traffic management, commercial space, space exploration and research and development. And despite our advantage in military assets, the threat in other aerospace arenas represents a clear concern about our national security.

The challenges are real because we have failed to make the investments necessary to maintain unquestioned leadership in global competition. The reasons are many. The investments made in the 1960s were of such proportion that they allowed us to utilize those technologies for decades since. Oh yes, we've made upgrades and improvements particularly with the use of computers and information systems, but in engines and airframes, rockets and satellites; we are not much further along than we were 30 years ago. Investments that used to go to aerospace have drifted elsewhere.

In a way, it is the nature of humankind to make such choices. The great British statesman, Benjamin Disraeli, once opined that "nations go from bondage to faith, from faith to courage, from courage to freedom, from freedom to abundance, from abundance to complacency, from complacency to dependency and from dependency back to bondage." It's all a matter of what each generation, in its time, chooses to do.

What our Commission found is that we must choose now to invest in aerospace. We need to create a new, modern, safer and more secure air traffic management system. We need to design power and propulsion systems for faster and more robust space travel. We need to reform export control policies so American aerospace industries can compete successfully in global markets. We need to improve math and science education so that we have a scientifically literate and technologically capable workforce. We need to design business models that encourage the long-term investments which aerospace requires. And we need to invest in cutting-edge research and development.

Too many of those needs were left unaddressed as we closed the 20th century. With the collapse of the Soviet empire, the United States was in a dominant global position. We were in control. But as my favorite Pennsylvania philosopher, race driver, Mario Andretti has said about racing, "If you're in control, you're not going fast enough."

Well, sure enough, what our Commission saw as we looked at the global environment was that our lack of investment was being met by decisions to invest by our economic competitors. Not their fault, ours, for not recognizing the need to stay current in a dynamic world economy. We were not prepared to go fast enough.

Let me give you a couple of examples of what we observed.

Clearly, the European decision to build the Galileo system as an alternative to our GPS system is a conscious decision within the European Union to challenge a core element of our space-based security and economic technology. If they produce a system more modern and more robust than our own, they will have the potential to extend that investment into a modern air traffic management program which we have failed to authorize for more than 20 years. What that would mean is the further potential that Europe could reap the rewards of setting standards and supplying resources for air traffic management worldwide for well into the 21st century.

The good news is that our Commission report recommending a strong effort on the part of the United States to develop an automated, space-based, highly secure air traffic management system has been embraced by key players in the Bush Administration. Just this week, I talked to Secretary Mineta and FAA Administrator Blakely and heard their enthusiastic endorsement of an interagency task force to begin developing the plan for just such a system. That's good news.

In yet another area, I came away from the Commission deliberations with the firm conviction that the Chinese are prepared to challenge us in a major way in space. In fact, I believe the Chinese are preparing to land humans on the moon within a decade and announce that they are there to stay.

My reasoning for this conclusion comes from a couple of Commission-related experiences. When we visited Star City in Russia, we found a Chinese crew in training. It was what they were training to do the day we were there that was particularly interesting. They were training for extra-vehicular activity (EVAs). The logical conclusion is that this type of training is a precursor of some advanced work that is to come in space.

More recently, I visited with a Japanese parliamentarian who has major responsibility in the science and technology area. I told him of my belief that the Chinese would be on the moon within a decade. He smiled and said I was wrong – not in my conclusion, but in my timeframe. “They’ll be there within 3 to 4 years,” he said.

Regardless of whose timing you accept, the fact is that a major U.S. achievement could be eclipsed by an international competitor very soon. Every national security policymaker who I have briefed on this matter agreed that such an event would have major security implications for our nation. And there is little doubt the completion of a moon effort would have a significant prestige effect for the Chinese.

While we are far from being ready to take humans back to the moon, there is some good news. At both DoD and NASA, there are programs proposed in the President’s new budget that track Commission recommendations and promise technological advances. The Defense Department is moving ahead with the National Aerospace Initiative designed to raise air speed by one mach every year for the next ten. This has major ramifications for both our military capabilities to deliver munitions, logistics and personnel much faster to world trouble spots. It also may serve as a first stage platform for a two-stage to orbit a fully reusable space vehicle. And, for the second stage, think orbital space plane.

Which brings me to the NASA good news. Not only has intense work begun on an orbital space plane, but Project Prometheus holds the promise of nuclear plasma engines to provide much quicker in-space transit times for missions throughout the solar system. The Commission enthusiastically endorsed this kind of technology development project with the idea that as you reduce the time it takes to go somewhere, you enhance the prospects of actually getting there because you create a political imperative for making it happen.

Each of these items – robust air traffic management, faster aircraft, advanced power and propulsion – is a tool needed to provide future generations with the capacity to do great things. And make no mistake, it is a generational issue.

The World War II generation believed in technology investment as a foundation for national and economic security. They took us to the moon because, paraphrasing President Kennedy, there are some things you do because they are hard. Generations willing to make those kind of investments, take those kinds of risks and make the sacrifices necessary to get the job done, come along only once in a while and are generally shaped by cataclysmic events. That theory actually belongs to William Strauss and Neil Howe who wrote about it in a best-selling book called *Generations* several years ago.

I mention it tonight because there is a new generation of doers and risk-takers coming of age right now – your children and grandchildren. Strauss and Howe predicted the rise of this generation more than a decade ago and even predicted the cataclysmic event that would shape them would happen in 2002 or 2003. Late 2001 is probably close enough and who can doubt that the aftermath of 9/11 has reshaped the 21st century.

But the point is that a generation likely to move us forward in remarkable ways is growing up around us. And there is little doubt in my mind that they will see space as the frontier where the quest for new knowledge is most vivid.

From Goddard, to Von Braun, to the Columbia astronauts, we have taken steps down the road toward opening space to human presence. It is as though throughout the last century the hand of God reached out and beckoned us toward the heavens. I suspect that I will not set foot on Mars or Europa – heck I’d just like to get to orbit – but there is a generation coming along who will. The tools we develop today will provide them with the capacity to achieve. Our greatness will rest in a legacy of science and technology foresight, if we make the appropriate investments.

That kind of foresight is exemplified by the Columbia astronauts. Vice President Cheney said it well at the National Cathedral memorial service. “They were bound together in the great cause of discovery. They were envoys to the unknown. They advanced human understanding by showing human courage.” The crew of Columbia was willing to take enormous risks because they believed in the importance of exploration and experimentation. We can believe in nothing less.

I am surrounded and humbled by the heroes of past space achievements here in this room tonight. I am grateful for the opportunity to address you at this wonderful dinner and ceremony. But while recognizing the great achievements of the past, somehow the words in the finale of the great musical, *Les Miserables*, keep running through my mind, “The future’s what we bring when tomorrow comes.” When tomorrow comes, will we have done everything we can to assure the future of humankind in space? Will we rest on past glories like that choice 31 years ago, or move on to new challenges?

In every generation, those kinds of choices are made. And the choices spell the difference between greatness and mediocrity. Are we willing for our time and for generations yet to come to choose the path of greatness? I believe we can. I believe we will. Because in this room our destiny is clear and our hopes are alive.