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# Commemorating the Columbia Astronauts

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and no Democrats, OK. I don't think we need to do that in the form of an agreement, but at least the Chair would recognize we are going to do that.

Mr. FRIST. Mr. President, I think that would be very much something we will agree to and appreciate. We have a lot to do in morning business over the course of today and tomorrow. To be able to use that time efficiently, alternating back and forth is certainly fine.

#### RESERVATION OF LEADER TIME

The PRESIDING OFFICER. Under the previous order, leadership time is reserved.

#### MORNING BUSINESS

The PRESIDING OFFICER. Under the previous order, there will now be a period for morning business not to extend beyond the hour of 12:30 p.m., with the time to be equally divided between the two leaders or their designees.

Mr. SUNUNU. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mrs. HUTCHISON. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

#### COMMEMORATING THE "COLUMBIA" ASTRONAUTS

Mrs. HUTCHISON. Mr. President, I send a resolution to the desk on behalf of myself, Senator NELSON of Florida, Senator FRIST of Tennessee, Senator DASCHLE of South Dakota, Senator CORNYN of Texas, and Senator GRAHAM of Florida, and I ask for its immediate consideration.

The PRESIDING OFFICER. The clerk will report the resolution by title.

The legislative clerk read as follows:

A resolution (S. Res. 45) commemorating the Columbia astronauts:

Whereas the United States of America and the world mourn the seven astronauts who perished aboard the Space Shuttle Columbia on February 1, 2003, as they re-entered Earth's atmosphere at the conclusion of their 16-day mission;

Whereas United States Air Force Colonel Rick D. Husband, Mission Commander; United States Navy Commander William "Willie" McCool, Pilot; United States Air Force Lieutenant Colonel Michael P. Anderson, Payload Commander/Mission Specialist; United States Navy Captain David M. Brown, Mission Specialist; United States Navy Commander Laurel Blair Salton Clark, Mission Specialist; Dr. Kalpana Chawla, Mission Specialist; and Israeli Air Force Colonel Ilan Ramon, Payload Specialist were killed in the line of duty during the 113th Space Shuttle Mission;

Whereas we stand in awe of the courage necessary to break the bonds of Earth and venture into space, with full knowledge of the perils and complexities inherent in such an endeavor;

Whereas the people of the United States and the world have enjoyed rich benefits from the space program including technological advances in medicine, communications, energy, agronomy, and astronomy;

Whereas we in the Congress of the United States recognize that curiosity, wonder and the desire to improve life on Earth has inspired our exploration of space and these traits epitomize the intrinsic dreams of the human race;

Whereas, despite these lofty goals, we realize that our reach for the stars will never be without risk or peril, and setbacks will always be a part of the human experience;

Whereas we recognize our solemn duty to devote our finest minds and resources toward minimizing these risks and protecting the remarkable men and women who are willing to risk their lives to serve mankind; and

Whereas we will always hold in our hearts the seven intrepid souls of Columbia, as well as those explorers who perished before, including those aboard Apollo I and the Space Shuttle Challenger: Now, therefore, be it

Resolved, That—

(1) the tragedy which befell the Space Shuttle Columbia shall not dissuade or discourage this Nation from venturing ever farther into the vastness of space;

(2) today we restate our firm commitment to exploring the planets and celestial bodies of our Solar System, and beyond;

(3) we express our eternal sorrow and heartfelt condolences to the families of the seven astronauts;

(4) we convey our condolences to our friends and allies in the state of Israel over the loss of Colonel Ilan Ramon, the first Israeli in space;

(5) we will never forget the sacrifices made by the seven heroes aboard Columbia; and

(6) we shall learn from this tragedy so that these sacrifices shall not have been in vain.

There being no objection, the Senate proceeded to consider the resolution.

The PRESIDING OFFICER. The Senator from Texas.

Mrs. HUTCHISON. I thank the Chair.

Mr. President, today I rise to honor the memory and the sacrifice of the seven astronauts whose lives were tragically cut short in pursuit of the newest frontier—space.

America is a word, a country, and a people. America is also a spirit, an indomitable spirit of adventure and courage, one that defies complacency and accepts challenge. The American spirit knows no bounds.

Israeli astronaut Ilan Ramon also had that spirit, and so did Kalpana Chawla, who was born in India and made America her home. It is that spirit which President Kennedy harnessed in 1961 when he made the bold claim: Within a decade, America would put a man on the Moon and return him safely home.

That same spirit enabled us to fulfill a great mission and make space travel seem routine, although it was never routine.

It is that spirit which fueled the hearts and minds of those seven men and women who launched into the sky on January 6, 2003.

On Saturday, we were reminded of the high price we sometimes pay for reaching new horizons. Our thirst for knowledge led us to explore space. Our curiosity, sense of wonderment, and desire to improve life on Earth prompted

us time and again to defy the odds. Those heroes did not take their task lightly, but they undertook it with joy.

Ilan Roman, the first Israeli astronaut, who was on that fated flight, wrote the following words from space:

The world looks marvelous from up here, so peaceful, so wonderful and so fragile.

His serene vision came to a catastrophic end on Saturday morning, and that moment when the world awoke to the news that seven astronauts disappeared into the skies will be one etched in our collective memories forever.

In recent years, America has borne too much tragedy and experienced too much grief, but our collective loss still sears our souls and the pain is never easier to bear. Today, just 4 short days after they vanished into the crystal blue skies of Texas, we pause to remember them and thank them from our hearts: Rick Husband, Kalpana Chawla, Laurel Clark, Ilan Roman, William McCool, David Brown, and Michael Anderson.

And though the families' loss cannot be diminished, their pain and grief is shared around the world and our prayers are with them.

Their sacrifice will never be forgotten. Their lives were not lost in vain. We will send more brave astronauts into the cosmos to learn and discover. We will continue to explore the vast sky that envelops the Earth and their names will forever be etched into the history of space flight.

Rick Husband, a spiritual man, a Texan, the commander of the Space Shuttle *Columbia*, often signed photos referencing Proverbs 3:5-6:

Trust in the Lord with all your heart and lean not on your own understanding; acknowledge Him in all your ways and He will direct your paths.

Throughout history, our young Nation has experienced great heartache and tragedy. Each time, we have overcome adversity with boldness and tenacity. We have come back stronger than ever.

With steely resolve and a firm determination, we rose from the ashes and embers of Ground Zero more resolute than ever before.

Christina Rossetti, the 18th century poet, wrote a poem called "Remember." She could never have envisioned what this poem would come to represent, but it did bring me some solace in this time of tragedy in my home State of Texas. She wrote:

Remember me when I am gone away,  
Gone far away into the silent land;  
When you can no more hold me by the hand,  
Nor I half turn to go yet turning stay.  
Remember me when no more day by day  
You tell me of our future that you planned;  
Only remember me; you understand  
It will be late to counsel then or pray.  
Yet if you should forget me for a while  
And afterwards remember, do not grieve:  
For if the darkness and corruption leave  
A vestige of the thoughts that I once had,  
Better by far you should forget and smile  
Than that you should remember and be sad.

We will hold these seven souls in our hearts and eventually we will smile

again. We will rise from the ashes in the fields of Texas, Louisiana, and Arkansas. The quest for space exploration will not end with this tragedy. It will live on, it will prosper, for it is our duty, our calling, and our destiny.

Yesterday, like so many Members of the Senate and House, along with the President of the United States and our First Lady, I attended a beautiful ceremony where we saw firsthand the families and the realization of their personal loss. We were uplifted by seeing the greatness of what these astronauts had done and what they are doing for the future of our country and our world. It is much bigger than just those seven astronauts, which I think their families and they themselves believed. They know this was a higher calling and that their sacrifices will lay the groundwork for a better space shuttle, a better space station, America staying preeminent in the world in national security and in medical research. I think they knew they were contributing to the future of our country.

The ceremony yesterday really began our time of closure, our time to pay the respects to those brave young men and women who were willing to make this sacrifice for their children and their future generations, and to say that America is going to renew our commitment. America is going to stay in the forefront, because we know if a country is static it will begin to fall behind. We know we have been the first to reap so many benefits from space exploration, which we have shared with the world. We know there are many more innovations to come and that America will be there to find those discoveries.

On behalf of myself and Senator NELSON of Florida, who is the only Member of the Senate today who has been in space, he will come later to also make a statement and then we will look forward to having a vote on the resolution.

I yield the floor.

The PRESIDING OFFICER. The Senator from New Hampshire.

Mr. SUNUNU. Mr. President, today I join my colleagues and millions around the world to express our enormous sorrow at the loss of the crew of the Space Shuttle *Columbia* and to extend sympathy to the crews' families and friends.

This tragedy, like the loss of the Space Shuttle *Challenger* 17 years ago, has left an empty space in our hearts. We struggle for the words that might help to make sense of the events we witnessed last Saturday.

A return to Earth that we have come to view as "routine," instead has reminded us of the fragility of life. We are all subject to the flaws of man and the vagaries of nature. Yet these seven brave men and women accepted great risk as they strove to expand the intellectual capital of all mankind.

For thousands of years, the heavens have inspired, intrigued, and called us

to explore their boundaries. This unending quest for knowledge is the very essence of what makes us human. It is a flame that burns so bright. It burns so bright that not even the depth of this tragedy or the shock of our loss can quench the desire to learn, to seek and to explore.

There is no doubt in my mind that we will move forward to expand and strengthen America's space program. And through the investigation that has just begun, we will find out what caused this accident and then we will fix it. But today, we mourn for those whom we have lost and offer comfort to those who have been left behind.

The astronauts who fly the space shuttle are a unique and unparalleled breed of men and women. They inspire us with courage and intellect, and they sacrifice in service to their country and profession. But perhaps their greatest service of all is rendered when they reach out to future generations and plant the seeds of curiosity in a young student's mind.

I have visited classrooms in the company of astronauts to see faces of children alive with wonder and awe. Like any one of us, our children want to know what it is like in space, what it is like to be a scientist, what it is like to be an explorer.

Seventeen years ago when the *Challenger* was lost, among the seven astronauts was a teacher from New Hampshire, Christa McAuliffe, who was dedicated to nurturing and inspiring students not just in New Hampshire but all across the country. Her spirit and enthusiasm has been captured for future generations in the Christa McAuliffe Planetarium in Concord, NH.

Each time I visit the planetarium, I am reminded that a child's curiosity grows into a lifetime search for answers to the great questions of our age. As long as we have astronauts to engage this curiosity, the quest for knowledge will endure and our space program will thrive.

Generations of Americans have been inspired by their courage and vision, but today, thoughts and prayers of millions are with the families and friends of *Columbia's* crew. The sadness of this moment may well one day fade, but the memory of these seven heroic figures will remain forever strong.

I yield the floor and suggest the absence of a quorum.

The PRESIDING OFFICER (Mr. GRAHAM of South Carolina). The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. SUNUNU. I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. SUNUNU. Mr. President, I ask unanimous consent during the allotted morning business period, the time used in quorum calls be charged evenly against each side.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. SUNUNU. I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. DURBIN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. DURBIN. Mr. President, this morning's morning business has been dedicated to the *Columbia* tragedy which occurred over the weekend. I want to take a few moments to speak from the heart about my experience yesterday, traveling to Houston to be there for the service that honored these seven brave men and women who gave their lives in the *Columbia* tragedy.

It was a bright and sunny day in Houston, a day which brought out literally thousands of people as they stood at the Space Center on the grass and waited for hours for the moments of tribute to the fallen astronauts and to their families. It was a military service, as those who followed it on television know, in the tradition primarily of the Navy. There was that touching moment where the bell was struck seven times for the loss of seven lives.

It also was a service which brought out, I thought, the very best in our Nation in terms of coming together in the grief that has really clouded our lives since last Saturday morning.

There were moments yesterday which I will not forget. The most compelling moments involved the arrival of families. You come to realize that these astronauts leave behind husbands and wives, children, parents, and many who loved them who will struggle for a long time to understand what happened. Most of them, six of the seven, were in the military—of the United States and of Israel. They understood the risk that was involved in their service to our country, as did the seventh astronaut. But with the success of so many space missions, I am certain they went into this flight believing the odds were on their side—and they certainly were. But they knew the danger, too, that was associated with it.

I am sure most people can recall where they were when they heard of this tragedy. I was sitting with my wife in our kitchen in Springfield, IL, listening to NPR when they interrupted it and mentioned the shuttle radio transmission had been lost. It was clear something terrible may have occurred. Then, of course, in the moments following, we heard the details.

I ran into a number of people in Illinois, both downstate in Springfield and in Chicago, before I came back to Washington and then went off to Houston, and all of them were touched by this tragedy, as they should have been. Some of them said to me: Senator, don't forget also the four soldiers who lost their lives last week in a helicopter crash in Afghanistan—and they

were right. Our prayers should be not just for the astronauts and their families but for all the men and women who have given their lives in service to this country. I know they are in our hearts and prayers.

A lot of hard questions will have to be asked and answered in the weeks ahead. We will have to find out what caused this crash, to make certain that it never happens again. There will be a lot of recriminations and people pointing fingers as to whether or not everyone did their job as they should have, including Congress, this President, and the previous President. But that is the nature of an open society—an open debate, an honest debate to try to come to some closure as to the reason for this tragedy.

Larger questions will be asked, and I hope answered, about the space program itself. This is a program which has been generally accepted by America as part of who we are and why we come together as a nation. We want to lead the world in the pursuit of science and knowledge and understanding. Our space program has been part of that. We will have to step back now and assess whether we are doing the right thing. We will have to ask and answer questions about manned space flight and the future of the space station, whether the shuttle is the best approach to serving that station, and our future needs. All of these are difficult but timely questions.

Having said all that, that is the working of government. That is the working of the people of the United States, responding to this disaster in a rational, measured, linear way.

But yesterday it was about much more. It was about these astronauts and their families.

Ilan Ramon was the first Israeli astronaut. I read about him. I have heard suggestions that he was a man who was destined to be part of the space program. No one in his country had ever done it. He is a great source of pride in Israel and to the people who followed his career.

Yesterday, some of the prayers delivered by the Rabbi and others were in Hebrew, as they should have been. They hearkened back to the origins of the Judeo-Christian culture that also contributed to this great man.

Also, Kalpana Chawla, Indian—the important thing to recall is not just how good she was—and that story was repeated over and over again—but to recall that she was an immigrant to this country.

I think that is something we should remind ourselves over and over. Immigrants to America throughout our history have made us a better and stronger Nation and have given us a special identity in the world. She contributed to that heritage, and her courage has to be recognized.

The list of the astronauts involved—those who had been on previous missions and those who were on their first—is a roster of excellence and

courage. Now it is up to us not just to mourn their loss and to comfort their families but to remember why they made their sacrifice and why they were prepared to run this risk. They were prepared to do more than most of us do in our daily routines. But they understood it was to meet a calling—a calling to which, frankly, all of us should aspire, to show the courage and to step forward to look to the future, to say that we each have to do something that is risky and on the edge so that tomorrow may be better for our children, for their families. We extend not only our sympathy but also our pledge to stand by them at this time of loss because they are part of the American family, an American family deep in mourning over the loss of these great men and women.

I yield the floor. I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. DASCHLE. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

The Democratic leader.

Mr. DASCHLE. Mr. President, in 1920, H.G. Wells wrote:

Life, forever dying to be born afresh, forever young and eager, will presently stand upon this earth as upon a footstool, and stretch out its realm amidst the stars.

We have long since realized that vision, voyaging from our planet, putting men and women and machines beyond the reach of the Earth, traveling the “airless Saharas” of space, exploring new worlds.

What we have been able to do requires the best minds of science, an audacity of imagination, and people explorers of uncommon bravery.

Today, we mourn seven of those brave explorers. These men and women stood upon our Earth as a footstool, stretched out our realm amidst the stars, set out on a voyage of discovery—and did not return.

I can only hope that our words, our prayers, and a world's shared sorrow will help bring peace to their families and loved ones.

This space shuttle *Columbia*—like all space shuttles—was named for a sailing ship. The *Columbia* was the first American vessel to circumnavigate the globe.

The crew of this *Columbia* were pioneers of the first order as well.

There was Rick Husband, the Air Force Colonel and commander of the *Columbia*. He was dedicated to God, his family, and his crew. While in space, he sent an e-mail saying: “I’m so proud of my crew, I could pop.”

There was William McCool, the man at the controls of *Columbia*. He was an Eagle Scout, second in his class at the Naval Academy. Friends describe him as someone who always did everything perfectly but never developed the arrogance that comes with such success.

There was Michael Anderson, who, as a child, dreamed of piloting his bunk bed to the moon. Michael Anderson never got to the moon, but he got a lot closer than most of us.

There was David Brown, a physician, gymnast, and one-time circus performer. For all of his many skills, as his mother said: “flying was his life.”

There was Laurel Clark, the medical doctor and mission specialist who offered this advice for aspiring astronauts: “Do what it is you love to do. You’ll do a really good job at it because you love it.”

There was Ilan Ramon—the child and grandchild of Holocaust survivors—who rode into space carrying with him the hope of a war-weary country.

Sadly, most of us are getting to know most of them only now.

Back in Rapid City, SD, there are dozens of schoolchildren who got to know—and be inspired by—Kalpana Chawla.

Three years ago, I asked then-NASA Administrator Dan Goldin if he would be willing to keynote a technology exhibition in Rapid City.

At the last minute, NASA called to say that they would have to send a substitute. They said: “But the good news is she’s even better. She’s an astronaut, and she’s brilliant.”

Dr. Chawla enchanted everyone who listened to her that day.

She stayed for a long time after her talk to sign autographs and pose for pictures with children.

A lot of those children in South Dakota are probably looking at those pictures today—and looking at how she signed them, for above her name she wrote: “reach for the stars.”

I can only hope that the excitement Dr. Chawla inspired in those children will never be diminished by her loss.

Inspiring the awe of discovery in others, that is what all of the members of the crew of *Columbia* lived for, and it is what they gave their lives for.

Yesterday, many of us were in Houston to honor their memories.

In the days ahead, I hope we can create a living memorial by continuing to strive for the stars.

In 1961, a satellite called Traac was launched from Cape Kennedy. Inscribed in an instrument panel of that satellite was a poem written by Professor Thomas Bergin, from Yale University. It was the first poem to be launched into orbit around the Earth.

I want to read a few lines of it now: And now 'tis man who dares assault the sky And as we come to claim our promised place, Aim only to repay the good you gave, And warm with human love the chill of space.

The seven astronauts of *Columbia* represented different races, different religions, different backgrounds, and, in one case, a different country. But they were united by their desire to solve the mysteries of the universe and to make life better for all people.

In living that hope—and dying with it—their lives will forever inspire us.

And their memories will warm the chill of space.

The PRESIDING OFFICER. The Senator from Connecticut.

Mr. LIEBERMAN. Mr. President, I rise to offer some comments in response to the *Columbia* shuttle disaster that we all learned about last Saturday. Since then, we Americans and most of the rest of the world really have been in a state of grief again, a state of mind and heart that many of us, of course, have experienced both personally and nationally before. Once again, in this case of public grief, television became our common touchstone, binding us through the ether, informing us with gripping yet familiar scenes and words.

And once again, we learned things we wished we had known and thought before the great loss. We learned of the astronaut whose aunt and uncle had lost a son on September 11 at the World Trade Center. Once again, they share a personal loss with the whole Nation. We learned of the Israeli astronaut who was part of the mission that destroyed an Iraqi nuclear reactor in 1981, an act that we now know saved the world from the menace of Saddam Hussein with his finger on a nuclear button.

We learned of a woman who emigrated from India to the United States, became an American citizen, and then an astronaut. Surely that is one of the most vibrant and exciting realizations of what we call the American dream I have ever heard.

I am sorry I did not know all this before the terrible news of last Saturday. That is both a testament to the success of the space program and a mark of how easy it is for all of us to forget the risks others have taken and are taking to advance the frontiers of our knowledge. The fact is, we take too much for granted, and it is sad it does take tragedy to shock us into an awareness of the sacrifices that are constantly being made by others on our behalf.

That was certainly true about the role of our firefighters and police and emergency medical and health personnel after September 11. It is true when our military men and women go into combat to protect our security. The loss of the Black Hawk crew in Afghanistan this past week is again a reminder of how much danger other Americans face on our behalf.

It is true also with regard to the *Columbia*, when the loss of that shuttle has caused us once again to stop and think about the men and women who climb on top of rockets and head into the coldness of outer space to advance the leading edge of human experience from which all of us benefit. We owe those seven brave souls our gratitude. We owe the same to those who fly today aboard the International Space Station and to those who are preparing to fly back and forth in the months and years to come.

Amidst the painful familiarity of the moment we are experiencing come the calls for a thorough accounting of what

happened; how did it happen. There are some who say we should have done this and others who say we should not have done that. Others will say we should abandon space, echoing a refrain we have heard intermittently now for more than 4 decades. Skepticism about space exploration, combined with the economic restraints faced by our Nation for many of the years of the past 4 decades, has, in fact, lowered our sights and diminished our momentum in space.

We must and we will investigate what happened to *Columbia*. No holds should be barred and every step should be taken to discover exactly what went wrong and to set about making it right so people will never again look aloft to see a fiery comet signalling the destruction of a spacecraft with its historic crew.

Yet we must be realists. No human advance comes without risk. In the history of human space flight, in fact, we have lost the crew of *Apollo 1*, *Soyuz 1* and *11*, the *Challenger*, and now *Columbia*. This is the most difficult, dangerous, and daunting work I can imagine. That in part is why we do it.

President Kennedy said more than 40 years ago:

We choose to go to the Moon in this decade and do the other things, not because they are easy but because they are hard.

There is no acceptable number of spacecraft lost in pursuit of what is hard and what is unknown. Obviously just one loss is too many. But we must recognize that the sacrifice of those who have died has not been in vain. The space program has yielded enormous results. It has also given our Nation and people throughout the world a sense of wonder that cannot be easily recounted in mere dollars and cents.

Our gross spiritual product, if you will, GSP, is higher than it would otherwise have been thanks to the efforts of the astronauts, the scientists, and all who make the exploration of space a noble part of our civilization.

We must emerge from this investigation of the *Columbia* tragedy and from our introspection about it resolved to do more, not less, to think bigger, not smaller, to aim higher, not lower. Just as we must build something great and beautiful where the World Trade Center towers once stood, a fitting tribute to the men and women of the *Columbia* is not really to fix what went wrong but to do what is right, to do what is characteristically American, to continue—indeed, to expand—their mission and to lift our sights to the heavens once again and pursue new missions—as Charles Krauthammer has written—“to the moon and beyond.”

We should do so not because we know what knowledge and benefits that pursuit of those goals will achieve; we should do so because we do not know. Yet we can be confident, based on our experience, that the effort will prove more than worth our while.

That is the wonder of exploration, to go beyond the next bend in the river,

over the next mountain, beyond the far horizon, not because we know what is there, but because we do not and want to find out.

Most great feats of exploration in human history have yielded benefits far in excess of what anyone could have predicted when they began. Surely we will find something on the Moon or Mars or elsewhere in the cosmos that will astonish us and transform the way we live. Surely we will discover things about ourselves in the process of mounting those great missions that will change our lives.

Spend the money here on Earth, some will say. Our problems are too great here to waste money in space or on the Moon or Mars.

First remember that not one single dollar will actually be left in space, on the Moon, or on the surface of the red planet. Every dollar invested in space is invested here on Earth, circulating throughout our economy, creating a multiplier effect as the jobs and discoveries associated with the space program lift in time our GDP, our gross domestic product.

Our new missions in space should be as the International Space Station is: American-led but international in scope. People and resources of many nations can and should be pooled to ensure that the great space missions of the 21st century are global projects that make sense, because success is more likely, of course, if we tap the best minds of the broad community of nations, not just our own. The investment needed can best be realized through contributions from many peoples, not just the American people.

Such a common venture also has other salutary effects. As President Clinton has said, We need a world with more friends and fewer terrorists. And what better way to expand our circle of friends than to invite them to join us on an inspiring voyage together into the unknown wonders of space. What better way to showcase our own unique values and technological advances than to lead a team of many nations whose citizens will share with us a stake in the outcome and a share of the pride.

Finally, embarking on a bold new age of discovery will help revive the American spirit. In the midst of terrorist threats from abroad, a shaken sense of security here at home, a troubled economy, and shocks to our system such as those we faced on September 11 and after from the anthrax and now from the loss of the *Columbia*, the American people may be feeling uncertain about our future. These have been tough times. But I am confident we are at heart an optimistic people and that for us the best truly is yet to come.

We have to find ways to strengthen our can-do spirit, to unleash our optimism and give us a stronger sense of national purpose and greater hope in a better future. No single enterprise can accomplish that goal. I do not mean to suggest that a visionary space program alone will turn the national tide. There

are other missions to consider as well that are closer to Earth—great missions—which together we can accomplish to cure cancer, make our Nation energy independent, and defeat the scourge of AIDS.

But remember that the American dream is not a zero-sum game. We can do more than we realize. We can expand opportunity and vision and hope if we set our minds, our hearts, and our national will to the task.

We have all been reminded in recent days of all that President Kennedy set in motion with his brief words to the Congress in 1961 when he committed America to land a man on the Moon before that decade was out. We should remind ourselves, too, of how far we have come in the hundred years since the Wright Brothers flew at Kitty Hawk. We cannot know how far and how fast mankind, humankind, will travel across the country or the universe by this century's end. That is the wonder of it. But if we fail to heed the call to explore, we will only succeed in stifling an astounding revolution that is bound to occur sooner or later.

Centuries ago, William Shakespeare wrote:

Our doubts are traitors and make us lose the good we oft might win by fearing to attempt.

We must not let our doubts make us lose the good we can win by venturing further into this special frontier in space of which we are aware.

In words that are more American than Shakespeare's, Mark Twain captured that same sensibility in one of the great American novels—maybe the greatest—"The Adventures of Huckleberry Finn," where Huck, with Jim, on the raft delighted always in approaching the next bend in the river, not knowing what they would find around the bend, but never fearful, always excited, and always confident of their ability to deal with whatever they found. In those last sentences of that great novel, Huck says:

I reckon I got to light out for the Territory ahead of the rest.

So he did, and so have we Americans before and since. We will not—those of us who are blessed to be citizens of this great country now—reap all that we sow, not in our lifetimes. Yet we will find nourishment for our national spirit in the effort itself and from the knowledge that we are working to make a better tomorrow for those who will follow us as citizens of this country and the world, whose faces we will not live to see, whose names we cannot know, but whose lives we can touch for the better by what we do today.

We do know the names of Rick Husband, Will McCool, Michael Anderson, Kalpana Chawla, David Brown, Laurel Clark, and Ilan Ramon. May God have mercy on them, their families, and friends, and may their souls be embraced in eternal life. May they, like modern-day angels, experience forever the peace, joy, and beauty of space flight. And may we never turn back

from the journey of discovery that inspired these heroes and must still inspire our Nation and the world to ever greater heights.

Let's light out for the territory ahead of the rest, and today that territory is beyond the sky. For that is the stuff of the American dream and the heart of the human soul. It must be our choice today, for surely it is our destiny.

I thank the Chair. I yield the floor and suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. COLEMAN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered. The Senator from Minnesota.

Mr. COLEMAN. Mr. President, it was my sad privilege to attend the memorial service for our great astronauts in Houston yesterday. As best I could, I carried the love and prayers of Minnesotans to that solemn occasion. It was heartbreaking; yet it was awe inspiring at the same time. There was a lot of love in Houston yesterday that surrounded the families of the brave astronauts.

I should note how blessed we are to have the President we have at times such as this. His words are good and true, but it is his heart that communicates to the hearts of Minnesotans.

How much we all owe to the explorers, the inventors and the pioneers. In Minnesota, we marvel at the thought that a Charles Lindberg from Little Falls, a small town on the Mississippi, was the one who opened a new door by traveling solo across the Atlantic. For almost every one of us, our presence in this country is a reality because some brave souls conquered their fears and headed off to an unknown place with the only hope that it meant a better life for their families.

The pain of this tragedy is made more acute because of the purity of the sacrifice of these seven extraordinary and ordinary folks. They did not climb into that rocket to get rich or to gain power or to become celebrities. They assumed the risk to their lives for science, for discovery, for the pushing out of the horizons of mankind.

As we mourn, may we in this Chamber and throughout this society seek that purity of motive and courage to take risks on behalf of others and in pursuit of a better future. May we express our appreciation far more freely for all those who take enormous risks on our behalf. May we embrace a spirit of service and sacrifice for others rather than idealize safety and security for ourselves.

Thousands of years ago, an ancient Hebrew writer put down these words, expressed as a prayer:

Where can I go from your spirit?  
Where can I flee from your presence?  
If I go up to the heavens, you are there;

If I make my bed in the depths, you are there.

If I rise on the wings of the dawn,  
If I settle on the far side of the sea,  
Even there your hand will guide me,  
Your right hand will hold me fast.

We pray for that comfort, we pray for that embrace for the families who are enduring this loss and that encouragement for all as we move on from here.

Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. NELSON of Florida. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered. The Senator from Florida.

Mr. NELSON of Florida. Mr. President, it is with an especially heavy heart that I join Senator HUTCHISON of Texas as a sponsor of S. Res. 45 commemorating the fallen astronauts on the *Columbia* mission and to express the Senate's support for continuing their legacy.

I, along with a number of other Senators and Members of the House and various parts of the NASA family, gathered yesterday in Houston. It is getting to be a gathering that is not pleasant, for we had a similar gathering 17 years ago—17 years ago, almost to the day—when we lost another space shuttle from a series of mistakes.

Oh, there were the technical reasons about why the Space Shuttle *Challenger* exploded, the technical reasons that the cold weather had stiffened the rubberized gaskets, called the O-rings, in the field joints of the solid rocket boosters, and that stiffened O-ring allowed the hot gases of the SRBs to pass through those creases—those field joints—of the SRBs. It just happened to burn out right where the strut was that held that SRB to the external tank. When that strut burned at the bottom, it caused that SRB to rotate and puncture the big external tank. Seventy minutes into the flight, miles high in the Florida sky, it was a shock to the Nation that the symbol of America's technological prowess would disintegrate right in front of our eyes through a television camera.

NASA realized its mistakes, and its mistakes were not only technical. Arrogance had set in at NASA.

A basic fundamental of information is that it should flow both ways, not only from the top to the bottom but from the bottom to the top. Because of arrogance it had not. As the count proceeded the night before, there were two engineers at Morton Thiokol in Utah who were begging their management to stop the count because they knew the frigid weather was going to stiffen those O-rings.

When we did the investigation, both in the Presidential Commission and in the committee I chaired at the time in the House of Representatives, the

Space Subcommittee of the full committee, the Science, Space and Technology Committee, what we found was that although those engineers were begging their management to send this information along, the information never got passed on to the NASA management.

There were mistakes of communication, there were mistakes of attitude, and there were mistakes as a result of arrogance that caused the destruction of the Space Shuttle *Challenger*. The NASA family went to work and really started improving on that.

The fact is, space flight is a risky business. When I flew 17 years ago, our flight returned to Earth only 10 days before *Challenger* launched. When I flew, there were 1,500 parts on the space shuttle called "critical one" parts—any one of which, if it were to fail, would mean the end of the mission. It was catastrophe.

So when one goes through a very unforgiving environment and returns in an unforgiving environment, there is risk. Probably the riskiest part is all of those parts have to work on the ascent. The ascent is only 8½ minutes to orbit, but in order to defy the bounds of gravity and go Mach 25, 17,500 miles an hour, which is orbital velocity, and to have that energy that puts the spacecraft in a position to punch out of the Earth's atmosphere and insert into orbit, it is risky. So, too, upon reentering the Earth's atmosphere, that is risky.

About an hour before landing, the orbiter is turned around and a thrust for 4 minutes of the two OMS engines, not the main engines but the OMS engines, is given to slow the orbiter a little from Mach 25. That slowly allows gravity to start pulling the spacecraft back to Earth. For about the next half hour, the spacecraft is basically in freefall still going about 17,000 miles an hour, traveling about a third of the way around the Earth, and at 400,000 feet the spacecraft starts encountering the Earth's atmosphere.

At that point, the computers have to be working perfectly. The orbiter has been turned around and the angle of attack has to be exactly perfect in order that those silicon tiles on the bottom of the orbiter are repelling the heat which on the underside of the wings has risen to 2,000 degrees Fahrenheit and on the leading edge of the wing has raised to 3,000 degrees Fahrenheit.

If those computers are not working perfectly to keep that angle of attack so that the heat is repelled, the orbiter will burn up. If the nose gets too low, it will burn up. If the tail gets too low, it will burn up. Or if there is a ripping off of the aluminum skin, these protective tiles that have been put there with a very high technology type of glue—one or two tiles, the structure is going to be invaded but it is not going to cause a catastrophe for the mission, but if many tiles are ripped off or if tiles have been damaged so that they are not smooth on the surface and are

now rough, causing new turbulence as the orbiter comes crashing through the Earth's denser atmosphere, as it gets lower and lower, turbulence will be created and there will be an additional opportunity for silicon tiles to rip off. If they rip off, there is going to be a catastrophe.

We still do not know what the initial cause was for the destruction of *Columbia*. We do know that one of the suspects is a piece of insulation came off of the huge external tank on launch. That insulation is like a foam, like a consistency of Styrofoam in a Styrofoam cooler and it could have been more hardened by ice having formed on the outside of that super-cooled external tank which has the liquid hydrogen and the liquid oxygen that fuels the main engines. It could have been harder because of ice having formed on that Styrofoam-type mixture, and that could have caused the initial damage or roughing up of some tiles, but we do not know at this point.

Some event started to occur as the shuttle was over California for debris was first seen high in the skies coming off the shuttle over California and then over New Mexico before the shuttle started to come apart over Texas.

We will find the cause and we will fix it, and we will get back to flight. Lord help us that we are not down for 2½ years as we were after *Challenger* and it took us 2½ years to feel safe enough to fly the first flight. I say, "Lord help us" because we have two astronauts and a cosmonaut in the space station right now. They are safe. They have a lifeboat up there of a Russian Soyuz craft that can bring them home, but we do not want to have to bring them home. We want to send a replacement crew so we can keep science and experiments going in that magnificent structure of a laboratory in the heavens called the International Space Station.

We are going to find the problem, we are going to fix it, and hopefully we are going to be able to fix it soon. If it is a massive failure of a thermal protection system, which is the tiles, then it is going to take us awhile.

In the early 1980s, we even looked at the possibility of going out on an EVA—that is a space walk—to fix damaged tiles. It was concluded in the 1980s that it was too much of a risk. First, we did not have the kind of glue that, in the vacuum of space, could fix those tiles, and then the risks of an astronaut going over the side where there was no communication in sight were considered so high. Remember, all of our space walks are outside of the open cargo bay where we have instant communication and sight with our space walkers. The basic problem was the EVA suit weighs 300 pounds and the boots are another 15 or 20 pounds. What happens if that space walker gets out of control? He will damage the tiles already there on the underside.

We are going to see if technology has advanced enough so we can repair those delicate silicon tiles on the un-

derside of the space shuttle if they are damaged on ascent and we can see significant damage. We will have to look at that. We did look at it in the early 1980s and we said we could not do it.

We were in Houston yesterday. NASA is a family. When a family member is taken, that family grieves. It was well known the commander of this mission, Rick Husband, had a deep and abiding faith. That had been spoken about quite a bit throughout the service, in sidebar conversations, in the remarks of the President, and today in a major feature article in the Washington Post. That does not help relieve or eliminate the grief. It does help console those who are grieving.

I saw a lot of macho, grizzled astronauts yesterday giving a lot of hugs. Those seven astronauts who died over Texas made the ultimate sacrifice in exchange for the benefits that their courageous exploration of the heavens will realize for all of mankind. It is with the greatest respect and gratitude to the families of those fallen that we say what we can—and we really cannot say anything that in the big picture is meaningful—to ensure their cause will continue.

To a man and a woman in this Senate, there is a determination that cause will continue. It will continue certainly as a memorial to those before them, all of those names that are on that significant astronaut memorial at the Kennedy Space Center, astronauts who have died in the line of duty—not just the ones you know about—the Apollo fire on the pad, the *Challenger 7*, and now the *Columbia 7*.

Not only will it continue as a memorial, but this program will continue because it is a reflection of the character of the American people. We are by nature explorers and adventurers. That is a part of our character. It began when Europeans left the continent and crossed the oceans. It is deep within our soul to be explorers and adventurers. When we settled this land known as New America, we had a frontier, and it was westward. We still have a frontier, and it is upward.

I believe in my lifetime we will see an international crew from planet Earth go to the planet Mars. We may well go back to the Moon and establish a lunar base. We might be mining things on the surface of the Moon, like helium 3. A cargo bay type load of helium 3 could generate the electrical power for the entire United States for 1 year. Those are the technologies that hold promise. We already see so many of the technologies developed in the space program, particularly when we went to the Moon. We had to have materials that were light in weight, small in volume, and highly reliable. In developing those for space exploration to go to the Moon, the spinoffs have been incredible. This watch is a part of the spinoff. So is an artificial heart. So is a kidney dialysis machine. So is much of our modern-day materials and alloys.

We will continue exploration, not only in the memory of our fallen comrades but for what it reflects as a character of the American people and the American spirit as well as the many benefits we derive from space exploration, not the least of which is to find out about that magnificent creation out there called the universe.

That is why I rise to join with Senator HUTCHISON in sponsoring this resolution commemorating our fallen brethren and sisters.

I yield the floor and suggest the absence of a quorum.

The PRESIDING OFFICER (Mr. KYL). The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. CORNYN. Mr. President, I ask unanimous consent the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. CORNYN. Mr. President, I ask unanimous consent that the vote on adoption of the pending resolution on the *Columbia* occur at 2:20 today, with 5 minutes prior to the vote equally divided between Senators HUTCHISON and NELSON for closing remarks.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. CORNYN. Mr. President, I rise today to pay tribute to the seven men and women of the Space Shuttle *Columbia* who dedicated their lives to the future of this Nation and our Nation's space program. In particular, seven men and women who knew the risk of strapping themselves on top of a rocket, leaving the Earth behind and exploring the heavens. Seven men and women who knew what they were doing but, nevertheless, volunteered for an extremely dangerous but critically important mission: Shuttle Commander Rick Husband, Pilot William McCool, Payload Commander Michael Anderson, Mission Specialist Kalpana Chawla, Mission Specialist David Brown, Mission Specialist Laurel Blair Salton Clark, and Payload Specialist Ilan Ramon.

These brave seven showed the Nation, indeed they showed the entire world that our thirst for knowledge and exploration is not yet quenched and, God willing, will never be. These brave seven are shining examples of the courage, enthusiasm, and awe that runs through the veins of all of the men and women associated with our space program, as well as the eager children across this Nation who look to the stars and see the beginning, not the end, of their dreams.

These brave seven and their colleagues throughout the space program inspire not only our Nation and our children, they inspire the entire world. Their actions, bravery, and achievement are a challenge to all humankind, a challenge to dream more, to achieve more, and to reach farther than ever thought possible.

As we know and as the President observed yesterday, high achievement is

inseparable from great risk. These seven proved that in a terrible and tragic way.

I would also like to take a moment to honor the men and women in my State of Texas—the police, fire, and emergency services, as well as thousands of local volunteers who have worked so hard on the ground in the aftermath of this terrible disaster to prevent further tragedy. In addition, they are in the process of collecting important evidence that will ultimately, we trust, lead to determination of what caused this terrible tragedy so it will never ever happen again.

Literally within minutes of the tragedy, ordinary Texans did extraordinary things. By working together, they helped to ensure the safety of their neighbors, and they helped speed the investigation so that heroic astronauts on future space missions will return home safely. These volunteers are still on site working together with law enforcement personnel. I want to express my gratitude, as I know the Nation does, for their efforts.

The fact that America and the world delight in every takeoff and hold their collective breath at every landing is a testament to the power and hope embodied in our Nation's space program. The heroes who create, maintain, and fly these amazing machines are a testament to the fact that dreams are the beginning and not the end of the possible.

I would also like to remind my colleagues that more than one nation mourns this tragedy. The nations of Israel and India and the rest of the world share in our grief as they share in our hope for the future.

Our space program inspired a young girl in the small town of Karnal, India to look to the heavens and see her future. Kalpana Chawla came to the United States, studied hard, worked hard, and became part of the greatest exploration force in the history of the world. Her efforts have inspired thousands of schoolchildren, and her example will inspire countless more in the future. She, in particular, has inspired schoolchildren in her hometown to watch in awe as she achieved what they only dreamed.

In Israel, Ilan Ramon was the hope of a nation and the inspiration for the next generation of scientists, fliers, and adventurers in the nation of Israel. And he no doubt inspired many young people in that country to reach beyond what now seems impossible—to dream beyond the unrest in that troubled area of our world and to dream about achieving the impossible. He is a hero, there and here, and an inspiration to all who dream of the stars.

As we mourn these fallen heroes, let us also take the opportunity to look forward to the future when shuttle flights are as common as air travel and the marvels of the space program are missions the mind has yet to imagine.

I yield the floor.

The PRESIDING OFFICER. The Senator from New Mexico is recognized.

Mr. BINGAMAN. Mr. President, I rise to pay tribute to the astronauts who perished aboard the Space Shuttle *Columbia* last Saturday, and to their families. It was a terrible tragedy we all suffered with the death of seven astronauts this last Saturday. We have heard many moving and eloquent tributes to those brave souls since the *Columbia* was lost. We have learned a great deal about the strength and courage and resourcefulness and humanity of each of those astronauts—Rick Husband, William McCool, David Brown, Kalpana Chawla, Michael Anderson, Laurel Clark, and Ilan Ramon. We have heard from the people who knew them best. Clearly, I and most of us here did not know them personally.

However, I want to take just a moment more to speak about one of those astronauts in particular—Laurel Salton Clark. She spent part of her youth in Albuquerque in my home State and she maintained roots there. Her father lives with his wife in Albuquerque. And Laurel's brother, John Salton, is an engineer at Sandia National Laboratories. Laurel attended Hodgkin Elementary School and Monroe Middle School, and frequently returned to Albuquerque for visits with family. She was a stellar student throughout her life. Her only B, according to her father, was one she received in high school in the typing class. She was a medical doctor. She was a flight surgeon in the Navy. And she made the astronaut corps when she was 5 months pregnant.

She stood for what is best about our country. She was brave; she was strong; she was full of life. We are all diminished by her loss. We are also, of course, all diminished by the loss of each of the other brave astronauts who perished in that terrible tragedy on Saturday.

I yield the floor and suggest the absence of a quorum.

The PRESIDING OFFICER (Mr. HAGEL). The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. KYL. Mr. President, I ask unanimous consent that the order for the quorum be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. KYL. Mr. President, at the height of the Renaissance, Leonardo da Vinci said: "When once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return."

From that day to this, men and women have toiled and sacrificed, even given their lives to the achievement of manned flight. Poems have been penned, speeches have been delivered, and history has been written honoring those men and women who have lived and some, unfortunately, who have died, to achieve our dreams—the dreams of all mankind.

To honor the memory of these gallant seven, we must devote the resources, and the far-reaching inquiry,

needed to find out what happened on February 1, 2003, and achieve the remedy so that this tragic accident will never be repeated.

As a nation we mourn the loss of the crew of *Columbia*, but as members of the family of man, we should celebrate their courage, their dedication, and their desire to better us all.

To the families of these heroes, here and abroad, we pledge to preserve and nurture the enterprise of space exploration. Our quest will continue. They will guide us on our way.

I would like to close with an observation that speaks to the spirit of exploring the unknown. It is from another member of the NASA family, astronaut Michael Collins. He said: "It is human nature to stretch, to go, to see, to understand. Exploration is not a choice, really; it is an imperative."

I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. CRAIG. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. CRAIG. Mr. President, I and all of my colleagues, and I think, all Americans, have been in a period of mourning as a result of the situation that occurred about 9:15 or 9:16 this past Saturday, as many of us watched in horror, the Space Shuttle *Columbia* disintegrate over the continental United States.

All of us in the Senate have had the privilege over the years of meeting many of our astronauts, and certainly even serving with some of them right here in the Senate. We have known of the phenomenal dedication and commitment of these men and women who do this very important work. It is a life of pursuing a challenge, and the reward was the service itself. It was not financial, it was not a large trophy. It was the challenge of the service and what they could provide for our country and for all mankind. I think yesterday, as many witnessed the memorial service at the Johnson Space Center in Houston—I was unable to attend—we were reminded once again of the phenomenal caliber and capability of these seven people.

Barbara Morgan from my State has pursued being an astronaut for many years. She was, up until now—and may still be—scheduled to fly into space within the year. She was part of the original teacher's program—one of those on standby and ready to go up when the *Challenger* went up and was lost. I have seen the excitement of being an astronaut and of achieving as an astronaut—for herself, yes, but for the American people—through the eyes and enthusiasm of Ms. Morgan.

So I am reminded through her, and what I know of her, of the caliber and talent of these people who are selected to become our astronauts.

We will now set about trying to find out what went wrong, as we should, because one wonderful thing about our space program from the very beginning, is we always erred on the side of human safety. We were always extremely cautious and we built phenomenal systems of redundancy to assure that the primary role was to guarantee—or at least provide—the optimum safety that we were technologically capable of doing; and something clearly has gone wrong. It is now our job and the job of NASA to be able to find out and to rectify it for future space travel.

I just said future space travel. I am an enthusiast of the space program and always have been. In the 20-plus years I have served in Congress, I have always supported NASA and all of its efforts. It is within this country's capability, and it is within the full character of our country that we do as we have done in the space program, and that is push and explore the unknown. We were founded, we became a country, we discovered our landmass. Some people thought they might fall over the edge of the earth because some who were on that maiden voyage with Columbus thought the earth was flat and surely they would sail off into the unknown and go over the edge, never to be heard from again. It was that kind of daring that made us what we are.

Just a few weeks ago, my wife and I had the privilege of traveling to Monticello for the commencement program of the bicentennial of Lewis and Clark. Of course, I am from Idaho. In those days, they didn't know there was an Idaho; they just knew there was a wilderness out there that nobody had penetrated before. It was the wisdom of Thomas Jefferson on that day in 1803 to have written a letter to Congress asking for \$2,500 to put a team together to explore the unknown. Did they ever think they would return? They didn't know it. There was no guarantee. The risks were high. Of course, all the rest is history.

What we witnessed last Saturday morning was a phenomenal reminder of the great spirit of adventure and the challenge that Americans have met for literally centuries. We are also reminded it is not just going down to the airport and getting on a shuttle. We have become relatively complacent that shuttles flew and there was an inherent amount of safety in them simply because they were flying so often—only to find out that simply was not the case. I hope—and I am confident of it—we will find remedies to the obvious problem that took the lives of seven wonderful human beings last Saturday and, in finding that, we will make another major step forward in allowing humans to travel into outer space and explore, or to allow their genius to travel into outer space and explore. For the adventure of it? Sure, but also for the applications of adventure and the tools of exploration that we then apply in our own lives—whether it is,

in fact, velcro, or the miniaturization of the electronic equipment that is a direct result of space travel that we use in all of our lives today to allow us to live more efficiently and be more productive.

That is part of the total investment that is the space program—the ability of this great country to push the outer limits and allow the genius of our people the resources to do just that. So we stand in awe of those who travel in outer space. But Saturday and yesterday were reminders that they are human, and that it is a very dangerous and risky business we pursue in the business of adventure, the business of pushing the unknown, and the great reward for accomplishing and succeeding in doing so.

I yield the floor.

Mr. LEVIN. Mr. President, I join my Senate colleagues and our Nation in honoring the seven astronauts who lost their lives as Space Shuttle *Columbia* returned home last Saturday. These brave individuals flew into space in the name of all humanity, and together we mourn their loss.

Those who perished with *Columbia* represented not only the best of our Nation, but the best of humankind. On board was a crew of seven: COL Rick Husband; LTC Michael Anderson; CDR Laurel Clark; CAPT David Brown; CDR William McCool; Dr. Kalpana Chawla; and Ilan Ramon, a colonel in the Israeli Air Force. They left behind 12 children, their spouses, along with numerous family members and friends. The people of the State of Michigan and our Nation share the grief and the pride of those who lost a loved one aboard the shuttle.

When *Columbia* blasted off from the Kennedy Space Center at Cape Canaveral a few weeks ago, the astronauts aboard left earth in relative anonymity. In many ways this is a result of NASA's success: there have now been 144 manned space missions. Consequently, many have come to view spaceflight as routine.

However, the journey of exploration which they shared posed great risk. But the astronauts aboard *Columbia*, like those aboard *Challenger* and in *Apollo I* before them, understood those risks associated with their mission. Last Saturday, our Nation and the world once again received the ultimate and painful reminders that these are still our first steps into space. Nevertheless, space exploration will continue, for exploring our world and the heavens above has been a dream of humanity since long before the namesake of the *Columbia* set out across the Atlantic Ocean seeking a new route to India.

I am confident that in the coming months we will leave no stone unturned in the quest to find the causes of this catastrophe. I am sure the necessary changes will be made to safely transport the heroes of today and those of tomorrow.

A generation ago, the challenge of manned spaceflight inspired thousands

of students to pursue careers in math, science and engineering. We are still benefitting from the innovations that this generation is responsible for. By rededicating ourselves to spaceflight and the wonders of science, we can produce another generation that will tackle new challenges and inspire us with their discoveries.

I believe the comment of my friend and our former colleague John Glenn summarizes it best. Following the tragedy of the Space Shuttle *Challenger*, he remarked, "they indeed carried our hopes and our dreams with them. Let us carry their memory with us." The men and women of the Space Shuttle *Columbia* carried with them the dreams of all of us and for that we thank them and hold them in our hearts.

Mr. ROCKEFELLER. Mr. President, this past Saturday, the world once again became painfully aware of the risks inherent in manned space travel. The *Columbia* tragedy has deeply wounded not only members of the NASA community, but also every American and indeed every person around the world who has ever looked up into the night sky and gazed in wonderment.

Of course, space exploration has always been a dangerous venture, and the seven astronauts who gave their lives on Saturday knew this full well and accepted their mission without reservation. Their long dedication to public service and their willingness to sacrifice, even at the risk of their own lives, in pursuit of knowledge and the betterment of mankind should be celebrated. We honor these American heroes.

At the same time, all of our thoughts and prayers are with the families of the crew during this terrible and difficult time. May they know that every American is forever indebted to their loved ones for their bravery and devotion to the American space program.

As we sort out the causes of this tragedy over the next several months and years, however, we must not fear the exploration of outer space. We must strive to return to space as soon as possible, maybe with different means, maybe unmanned, until we can be most assured of improved safety, for the benefits of the space program are innumerable and irrefutable.

Because of research performed in outer space, people all over the world now benefit from, among other things, improved water and air purification systems, kidney dialysis machines, more efficient solar collectors, artificial hearts and limbs, improved emergency rescue equipment, and fire retardant materials. In fact, more than 100 documented NASA technologies from the space shuttle are now incorporated into the tools we use, the foods we eat, and the biotechnology and medicines used to improve our health.

In addition to these immense practical benefits, we must not forget the power of space flight to inspire and motivate that those who will eventually

lead us in the future. In 1957, a group of six boys in my home State of West Virginia observed Sputnik flying high overhead and realized that rocketry was their calling in life. In the 45 years since, the group, now known as the Rocket Boys, has made space exploration a reality for countless children and adults in West Virginia. Early space flight inspired them, and it inspired space education in West Virginia.

As a result of this inspiration, West Virginia is now the proud home of the NASA Independent Identification and Validation Center in Fairmont where 150 NASA employees and contractors play a critical role in space shuttle mission control software. Our State is also the proud home of the Challenger Learning Center at Wheeling Jesuit University which provides schoolchildren and teachers the chance to experience space simulation and many opportunities for math, science, and technology education.

It is easy to support the space program during times of great success and spectacular achievement. But it is perhaps during times of tragedy and confusion that the program needs our support the most. Just yesterday, President Bush expressed his support for the continuation of the space shuttle program, declaring that the "American journey into space will go on."

NASA's remaining astronaut corps, as well as their flight directors and engineers, embody the very same bravery and dedication as their fallen colleagues. It is now up to all of us to echo support for our space program so that this bravery is not wasted, so that the immense benefits of the space program, as well as future astronauts, can be safely brought back to Earth.

• Mr. GRAHAM of South Carolina. Mr. President, all Americans were saddened by the terrible tragedy last weekend involving the Space Shuttle *Columbia*. The world has lost seven incredibly talented people who were striving to make this a better planet for us all. Our hearts go out to the families of the astronauts. I hope God will provide them comfort and healing during this difficult time.

For decades, Americans have been proud of our space program and the brave men and women who have led our explorations in space travel. They have been pioneers seeking a better understanding of our own planet and what lies in the deep, dark expanse of space.

In the coming days and weeks our Nation will mourn for the astronauts of the Space Shuttle *Columbia* as well as the friends and families they left behind. We will also mourn for the thousands of dedicated workers at NASA who are suffering from this painful loss. We will take our time to carefully study and examine what went wrong and then we'll make the necessary corrections and adjustments.

At the appropriate time, we will once again move forward into new frontiers and new missions for space exploration.

It is who we are. It is what we do. It is why we are Americans. •

Mr. KENNEDY. Mr. President, together, as a nation, we mourn the loss of the seven extraordinary men and women of the *Columbia* shuttle who gave their lives so unselfishly and courageously for our country. They knew the dangers they faced, but they believed in their mission, and they represent the very best of America.

We know the great loss their families and the whole Nation have suffered, and they are very much in our thoughts and prayers. They were daring and brave explorers. Their extraordinary spirit and courage enabled them to reach for the stars and explore the universe and discover its truths. In serving America so well, they also served all humanity.

The best way for all of us to honor the memory and sacrifice of these brave young men and women is to carry on the work they were part of. The tragedy reminds us again that those who venture into space place their own lives at risk as they try to benefit us all. We can vindicate their faith by keeping faith with them. Those whom we have just lost would be the first to say to us, "persevere, go forward," because they were pioneers in the truest sense and in the greatest of American tradition. They were willing to take risks, even to risk their lives in order to benefit us all.

I know how deeply President Kennedy believed in the space program. He called it, "the vast ocean of space," and he set our Nation firmly on a course to explore it, understand it, and use it in ways that help and protect us all. When America first embarked more than 40 years ago on the great voyage into space, President Kennedy said, "It will not be one man going to the Moon: it will be an entire Nation."

He knew that when we reach for the stars, sometimes we fall short. But as he knew so well, the mission must go on. He would have been very proud of these seven astronauts, as all of us are today. Let us honor these seven inspiring heroes by continuing the great enduring mission they were part of, for the benefit of our country, our planet, and all peoples everywhere.

As my brother said on November 21, 1963, the day before he left us, "This Nation has tossed its cap over the wall of space, and we shall have no choice but to follow it." In the quintessential spirit of America, the crew of the *Columbia* have tossed their caps over that wall, too, and we shall never forget them.

I extend my deepest and heartfelt sympathy to the families who have so suddenly lost their loved ones. I ask unanimous consent to have printed in the RECORD an excerpt from President Kennedy's address to Congress on space in 1961, and the poem "High Flight" by John Gillespie Magee, Jr., which President Reagan read after the loss of the *Challenger* in 1986.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

EXCERPT FROM ADDRESS OF PRESIDENT JOHN F. KENNEDY TO A SPECIAL JOINT SESSION OF CONGRESS (MAY 25, 1961)

. . . Now it is time to take longer strides—time for a great new American enterprise—time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth.

I believe we possess all the resources and talents necessary. But the facts of the matter are that we have never made the national decisions or marshalled the national resources required for such leadership. We have never specified long-range goals on an urgent time schedule, or managed our resources and our time so as to insure their fulfillment.

Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead-time, and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive success, we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last. We take an additional risk by making it in full view of the world, but as shown by the feat of astronaut Shepard, this very risk enhances our stature when we are successful. But this is not merely a race. Space is open to us now; and our eagerness to share its meaning is not governed by the efforts of others. We go into space because whatever mankind must undertake, free men must fully share.

I therefore ask the Congress, above and beyond the increases I have earlier requested for space activities, to provide the funds which are needed to meet the following national goals:

First, 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. . . . But in a very real sense, it will not be one man going to the moon—if we make this judgment affirmatively, it will be an entire nation. For all of us must work to put him there . . .

#### HIGH FLIGHT

(By John Gillespie Magee, Jr.)

(Magee was a 19-year-old American volunteer with the Royal Canadian Air Force, who was killed in training December 11, 1941.)

Oh! I have slipped the surly bonds of Earth  
And danced the skies on laughter-silvered wings;  
Sunward I've climbed, and joined the tumbling mirth  
Of sun-split clouds—and done a hundred things  
You have not dreamed of—wheeled and soared and swung  
High in the sunlight silence. Hov'ring there,  
I've chased the shouting wind along, and flung  
My eager craft through footless halls of air  
Up, up the long, delirious, burning blue  
I've topped the wind-swept heights with easy grace,  
Where never lark, or even eagle, flew;  
And, while with silent, lifting mind I've trod  
The high untrespassed sanctity of space,  
Put out my hand, and touched the face of God.

Mr. GRASSLEY. Mr. President. I rise today with a heavy heart to honor seven fallen astronauts, the adventurers aboard *Columbia*. On Saturday, February 1, after 16 days in space, their

hero's homecoming abruptly turned into a national tragedy. As the space shuttle fell apart upon re-entry into Earth's atmosphere in the skies above Texas, the Nation once again fell into mourning.

Each of the seven astronauts leaves behind family and friends who now bear the burden of immense sorrow and grief. May they find peace in the days and years ahead. The loss of a spouse, father, mother, sibling, or child brings immeasurable anguish, especially under such tragic, public circumstances.

May they find comfort in the knowledge that their loved ones were pursuing their lifelong dreams. The dreams of individuals whose aspirations will benefit all of humanity. They leave behind for their children and grandchildren a legacy that will continue to inspire generations to come. The U.S. space program will continue. Their mission will not be forgotten.

In classrooms across America, Israel, India, and the world over, young impressionable minds can learn from these seven ambitious individuals the values inherent to the human spirit: courage, adventure, discipline, discovery, commitment, exploration, and risk-taking.

Each of the astronauts ought to be remembered in history for their willingness to risk it all in pursuit of scientific discovery. The *Columbia* crew carried out 90 experiments to help solve problems here on Earth, including science experiments developed by students from 9 States and 8 countries. Thanks to their selfless good work—ranging from tests developed to help fight cancer, improve crop yields, build earthquake-resistant buildings, and understand the effects of dust storms on weather—human civilization stands to gain from their labors above.

Like the explorers and frontiersman who traversed the unknown before them, these seven men and women responded to a similar calling. Their predecessors navigated uncharted territory by way of oceans and open prairie: Ferdinand Magellan, James Cook, Lewis and Clark. It is a timeless human quest to discover the undiscovered and to take risks.

These magnificent seven set out on heavenly horizons to explore, investigate, research, and navigate what for most of us Earth-bound folks will remain a mystery. We are indebted to their courage, commitment and contributions.

Mr. President, I wanted like to single out one member of the crew. One of seven U.S. astronauts with Iowa ties, Laurel Clark was born in Ames. She leaves behind some family members in Iowa, including her 96-year-old grandmother Mary Haviland and Doug and Betty Haviland, her aunt and uncle. For the second time in 16 months, Reverend and Mrs. Haviland are coming to grips with devastating grief. They also lost their son in the World Trade Center attacks on 9/11. Friends and family

members recall Clark as a high-achiever committed to science and the space program. Last year, she visited an elementary school in Carroll, IA to educate a second-grade class about the space shuttle's mission. A wife and mother of an 8-year-old son, the 41-year-old Navy doctor was on her first space flight. In her e-mails from *Columbia*, Clark wrote about how "glorious" it was to see Earth from her position in space. May her loved ones find peace as she watches over them now from the heavens above. The necessary investigations are underway to discover what went so terribly wrong on that bright Saturday morning in February, just minutes before the crew's homecoming. May we fully ascertain what went wrong to bring closure to the loved ones left behind and avert another tragedy. Congress will need to continue strong oversight and consider NASA's budgeting needs to ensure an effective, efficient, and safe space program.

It is sadly ironic to consider that for many Americans, these highly-trained and dedicated astronauts would have remained to them anonymous if not for the tragedy that took their lives. Continuing and improving the space program would be the best way to honor the legacy of the fallen *Columbia* crew. Consider the discoveries waiting to be made in medicine, biology, physics, meteorology, and agro-sciences. Don't discount the advances already made in satellite communications and strategic military defense systems thanks to space exploration.

Four decades ago, the first American astronauts launched us into space. There is no turning back on destiny now.

Notwithstanding the loss of human life, I believe the *Columbia* crew, including Iowa-born Laurel Clark, would urge us to resume America's space odyssey and get back to the future.

Ms. CANTWELL. Mr. President, I rise today to honor the seven heroes lost in the tragic explosion of the space shuttle *Columbia* on February 1, 2003.

The seven members of the *Columbia* crew will be deeply missed by their families, NASA, our entire country, and others following this historic mission.

Though I could recite an astonishing list of accomplishments for each of the seven astronauts, their most important contribution was the example of bravery, courage, and excellence they set for men, women, and children across the land.

I am proud to say that one of these heroes, Air Force LTC Michael Anderson was a beloved son of the Spokane community and a cherished hero for men, women, and children in Washington. But Michael Anderson was a hero long before the accepted challenge of the *Columbia* mission.

Lieutenant Colonel Anderson knew he wanted to be an astronaut at the early age of 3. This dream followed him to Washington, when he and his family

moved to the Spokane area at age 11 after his father was assigned to the nearby Fairchild Air Force Base.

Throughout his early education in Spokane area public schools, Anderson remained focused on his goal of being an astronaut, becoming an exceptional science student, and overcoming all of the challenges facing a young African-American man in this country.

He graduated from Cheney High School in Cheney, WA, in 1977 and continued his science education with a bachelor of science degree in physics/astronomy from the University of Washington in 1981, when he was also commissioned as a second lieutenant of the Air Force. Anderson later completed a master of science degree in physics from Creighton University in 1990.

After becoming an astronaut in 1994, Michael Anderson took to heart his responsibility as a role model for children around the country and back home. After his 1998 flight on the space shuttle *Endeavor* to the *Mir* Space Station, Anderson visited his alma mater, Cheney High School.

With a crowd of enthralled students listening on, Anderson told the students that they could do what he had done if they set goals and worked hard.

Anderson also left the students a reminder of his achievement, returning a school pennant that he had taken to space with him on the mission. On display in the school's main entrance, this pennant, along with a mission patch and small flag that also went into space, continues to serve as an inspiration to the school's students.

LTC Anderson is an amazing story of courage, achievement against many odds, and sacrifice for this country. He provided a demonstration of excellence and offered a triumphant example of accomplishment for Americans of all color, race, and background. He will be missed, but he will never be forgotten.

The Washington family has also lost another friend in Navy CDR Willie McCool, who made Anacortes, WA, his home during two terms of service at Naval Air Station Whidbey Island.

Commander McCool was not only well regarded during his time at Whidbey, but he continued his tie to the community after he left. Community members remember him for his kindness and professionalism and his love of children; he often returned to Fidalgo Elementary School to discuss his work as an astronaut.

We lost a good friend in Commander McCool and also lost a piece of home; he brought a bit of Anacortes with him on *Columbia* in the form of a Douglas fir cone from the surrounding forest.

Though the loss of this crew is a sober reminder of the risks involved with human space flight, I join the President and many of my fellow Members of Congress in calling for the continued support of NASA's space shuttle program.

Critically, this support, together with a continued investigation of this

tragedy, must be focused on ensuring the safety of future space shuttle flights.

The space shuttle program remains a leading force in scientific research and in stimulating public interest in space exploration.

This leadership is exemplified by the numerous experiments conducted by the *Columbia* crew before the tragic re-entry, and the interest of scientists, schoolchildren, and people worldwide.

The space shuttle is also critical for the assembly and operation of the International Space Station.

Importantly, the benefits of the experiments conducted on the space shuttle and the International Space Station extend beyond the scientific community to directly enhance the lives of individuals across the globe, whether in finding cures to diseases or helping us understand the origin of the universe.

While the tremendous technical and scientific accomplishments of NASA demonstrate vividly that humans can achieve previously inconceivable feats, the exploration of space also humbles us by exhibiting the miracle of this tiny "blue marble" in the cosmos and the wonder and preciousness of human life.

Mr. BROWNBACK. Mr. President, on January 16 the crew of STS-107 launched from Cape Canaveral, FL through the skies to space. They were sent on a mission to further space exploration and had the work of more than 70 international scientists onboard. The *Columbia* crew of seven had a research mission in the space, physical, and life sciences. After a nearly flawless mission, the world witnessed their tragic death as the *Columbia* Space shuttle shattered above the Earth upon its return on February 1.

As is well known now, this crew, doing the work of international scientists, were quite international themselves. The diverse group of human researchers spanned the globe, hailing home to the United States, India, and Israel. Each country celebrated in their own way their national heroes upon the launch of *Columbia*. But now, these countries join together in sharing our sorrows with each other in the aftermath of such a heartbreaking tragedy.

These people each brought something special to the mission of NASA. CDR Rick Husband first dreamed of being an astronaut at the age of 4 and worked throughout his life to become an astronaut, fulfilling his dream in 1994 when he was selected by NASA. Pilot Willie McCool was the most steady and dependable of men; his friends considered themselves blessed to know him. Payload CDR Michael Anderson always wanted to fly and along the way of achieving his goals, he became a role model for African-American children across the United States. David Brown, mission specialist, probably most accurately said what we believe now, that, "This program will go on," no matter what happens. Kalpana Chawla traveled an arduous path to becoming an

astronaut and represents so well the diversity aboard the *Columbia*. Born in India, she moved to the United States to fulfill her dream of reaching the stars. She has now done that and more. Laurel Clark was a physician and a flight surgeon who loved her work and her family. From aboard the shuttle Laurel said, "Life continues in a lot of places and life is a magical thing." She could not have captured the feelings of so many any more accurately. Ilan Ramon, who brought so much attention and pride to this mission, was the first Israeli astronaut. The son of a Holocaust survivor, he brought with him aboard the shuttle a picture that a Jewish boy had drawn before he died in the Holocaust.

The diversity of this crew so accurately represents the diversity in the missions of NASA. Even through the cold war era and into today aboard the International Space Station, NASA has been a leader in international relations. Taking giant steps for mankind, NASA often times set the example for the rest of the world to follow. It is in that spirit that we sent the *Columbia* crew to do their work, and it is in that spirit that we will continue their work.

NASA has, from its inception, been charged with making the impossible possible. From the early days of the Mercury Program, through the advancements in Gemini and the triumphant successes of Apollo, NASA has given us a sense of national pride. Yet we mustn't let our pride fool us into thinking that NASA's work is commonplace. Each time a shuttle launches and a mission is accomplished, it is a miraculous, humbling event.

The mission of these seven astronauts did not end when the *Columbia* went down. No. Their mission will go on. Space exploration is in our blood, a part of our national heritage. Manned space flight will continue, and these heroes would want it to. We will move on with space exploration and we will do so with pride, ensuring that these seven lives were not lost in vain.

America is strong. She is steadfast. And she is brave. God has called these mothers, fathers, sons, and daughters, but we will not forget them. We will never forget the inspiration they gave to so many hopeful citizens on Earth. We must persevere and we must move on, for the honor of these seven fallen heroes.

As chairman of the Science, Technology, and Space Subcommittee here in the Senate, I plan to take an active role in ensuring that the dreams of these seven astronauts are not forgotten. As NASA determines what went so terribly wrong, we will be diligent in doing everything we can in the Congress to give NASA the support it needs to make sure we press forward with scientific advances, and that nothing like this happens again.

Our next step will be to determine what the future of space exploration holds for Americans—what our goal is

and how we get there. The tragedy that NASA is enduring will not dissuade or discourage America from venturing into space. Our commitment to space exploration is firm.

For the families of the seven, I send my prayers. As Psalm 19 states, "The heavens declare the glory of God . . .". The heavens are now declaring the glory of these seven heroes. There are seven more stars in the heavens tonight, and with each setting of the sun, the spirits of our seven heroes will shine brighter. Every time we look up into the starry night, we can remember the lives of the seven cherished heroes aboard the Space Shuttle *Columbia* and be proud, proud of their dedication, their diversity, and their dream.

I express my heartfelt sorrow and condolences to the families and friends of these seven astronauts. I will never forget the sacrifices they made in the name of exploration. May God bless them and their families.

Mr. KOHL. Mr. President, I rise today to honor the memory of Dr. Laurel Blair Salton Clark, one of the seven courageous astronauts tragically killed when the Space Shuttle *Columbia* disintegrated over Texas on Saturday, February 1.

Dr. Clark was born in 1961 in Ames, IA. She graduated in 1979 from Racine's William Horlick High School in Wisconsin. She received a bachelor's degree in zoology in 1983 and a doctorate in medicine in 1987 from the University of Wisconsin-Madison. Dr. Clark joined the Navy, in part to finance her college education.

A flight surgeon trained as a Navy undersea medical officer, Dr. Clark performed medical evacuations from submarines during assignment in Holy Loch, Scotland. She was assigned as a flight surgeon for a Marine Corps AV-8B Night Attack Harrier Squadron in Yuma, AZ, and for the Naval Flight Officer Advanced Training Squadron in Pensacola, FL. In April of 1996, Dr. Clark was selected by NASA, and she qualified for flight assignment as a mission specialist after completing 2 years of training and evaluation.

There were over 80 experiments conducted aboard *Columbia*, most dedicated to research investigating human physiology, fire suppression, drug delivery techniques, and space communication technology. The research conducted during the 16-day mission was sponsored by NASA and the European, Canadian, and German Space Agencies. Schools and universities around the world were involved in many of the experiments the crew performed in Spacehab, a facility which offers scientists access to microgravity aboard space shuttles.

Many have noted and applauded the diversity of the *Columbia's* crew, and Dr. Clark certainly hoped that the scientific experiments the crew conducted would benefit all mankind. In an e-mail sent to her family and friends on Friday, January 31, she spoke of feeling blessed to be representing the United

States and "carrying out the research of scientists around the world."

Our thoughts and prayers are with Dr. Clark's 8-year-old son Ian and her husband Jonathan Clark. The loss of the space shuttle's crew is devastating, and my hope is that we can identify the cause of the *Columbia's* breakup and prevent such tragedies in the future.

Dr. Laurel Clark told her loved ones of the *Columbia* mission, "magically, the very first day we flew over Lake Michigan and I saw Wind Point clearly." Speaking on behalf of Wisconsin, we are honored that she considered Racine her hometown. Today, we celebrate the brave contributions Dr. Laurel Blair Salton Clark made during her life and career, and we honor her memory throughout the Nation.

I yield the floor.

Ms. MIKULSKI. Mr. President, I rise to speak today on the *Columbia* tragedy. On Saturday, February 1, our Nation suffered a tragic loss. The seven astronauts of the Space Shuttle *Columbia* gave their lives in service of their country and all mankind. These brave men and women displayed a dedication to duty and scientific exploration that is an inspiration to all of us. India and Israel share in our shock and grief. Israel lost a national hero, their nation's first astronaut, Colonel Ilan Ramon. My thoughts and prayers are with all the families. They should know that the United States Senate shares their sorrow and will remember and honor the lives of their loved ones.

The best way to honor these seven brave men and women is to move forward with the space program. But first, there needs to be a thorough, rigorous and candid investigation of what went wrong. The issues confronting us are immediate and severe. Three American astronauts remain in space. The two investigative committees must gather the evidence, conduct their analysis and report to the Congress and to the American people with candor so the shuttle program can move forward in the safest way possible.

In my years as chair of the Appropriations Subcommittee, and now as its ranking member, shuttle safety has been my top priority. But, shuttle safety and astronaut safety have also been the priority of the committee—on a bipartisan basis. When I first joined the committee, Senator Jake Garn of Utah—himself a former astronaut—was my mentor. We worked together using the findings of the Challenger and Augustine Commissions as blueprints for NASA's future. The Augustine report gave us guiding principles for a balanced space program. The Challenger report told us what we needed to do on safety. Now, with my friend and colleague, Senator KIT BOND, I share the same bipartisan spirit. We have common goals and common values. He believes, as I do, that safety must come first. Over the last few years, no matter which of us was chair and which was ranking, safety was the number one priority.

There has never been any question that we would fully fund the shuttle program and shuttle safety initiatives. Year after year, Senator BOND and I worked together to make sure everything that NASA asked for was put in the Federal checkbook. But, we went even farther than that. For the last two years, while I was chair, I wrote into the report language that NASA must make the safety of the shuttle program and the safety of our astronauts its highest priority. Last year, I said in the committee's report that NASA's budget must reflect its long-term challenges. I asked for a detailed assessment of the agency's needs and an accounting of what funding was needed.

The immediate need facing NASA is the *Columbia* investigation. This report addresses an immediate problem for which there are immediate and severe consequences. Then the long range issues must be addressed. What does NASA do about its aging infrastructure and aging workforce? How are we going to have a balanced 21st century space program that includes human flight, space science and aeronautics?

To conclude, I salute the men and women of Texas and Louisiana. The local law enforcement, national guard, regular men and women who live in these small towns—everyone is pitching in to find fragments of the *Columbia*, to guard them, to make sure every piece gets to the NASA investigators. People are opening their homes to volunteers, cooking and delivering meals. Thank you for everything you are doing. You represent the best of the American spirit. Like we have seen after other tragedies—the rescue workers and volunteers at ground zero—in the face of tragedy, America stands united.

Mr. LOTT. Mr. President, I take this time to express my grief, as well as the grief of all Mississippians, over the loss of the crew of the Space Shuttle *Columbia*. Mississippians feel a strong bond to both the space program and the crew of the *Columbia*. One reason for this bond is NASA's John C. Stennis Space Center. The Stennis Space Center, which is located in Hancock County, MS, tests every space shuttle's main engine before it is installed for a launch. Also, the Stennis Space Center's remote sensing experts are currently assisting NASA in locating debris from the *Columbia*.

Another reason Mississippians feel closely connected to the *Columbia* tragedy is that Robert and Barbara Anderson, the parents of LTC Michael Anderson, were both born in Mississippi. While Mr. and Mrs. Anderson now live in Spokane, WA, they still have family members who reside in Madison County, MS. While these ties to the space program and the crew of the *Columbia* provide Mississippians with a source of great honor and pride, now that tragedy has struck, these ties make the loss of the seven *Columbia* astronauts that much more personal.

The loss of the *Columbia* crew was truly a national tragedy. While the United States has been blessed with many outstanding natural resources, no one will ever convince me that our most valuable resource is anything other than the outstanding individuals this country produces. Our NASA astronauts are outstanding individuals who represent the best of the best.

While I am sure that many here are familiar with the type of outstanding personal achievement that is required to become an astronaut, I would like to take a moment to give a brief synopsis of the accomplishments of the seven crew members of the *Columbia* shuttle.

COL Rick Husband, commander. Rick Husband, 45, was a test pilot in the U.S. Air Force. He received a bachelor of science degree in mechanical engineering from Texas Tech University in 1980 and a master of science degree in mechanical engineering from California State University-Fresno in 1990. Husband had already completed a space mission as the pilot of STS-96 in 1999, on which the first docking with the International Space Station was performed. Rick Husband leaves a wife and two children behind.

CDR William C. McCool, pilot. William C. McCool, 41, served as a commander in the U.S. Navy and was also a former test pilot. In 1983, McCool received a bachelor of science degree in applied science from the U.S. Naval Academy, where he graduated second in his class. He later received a master of science degree in computer science from the University of Maryland in 1985 and a master of science degree in aeronautical engineering from the U.S. Naval Postgraduate School in 1992. This was William McCool's first space flight. He leaves behind a wife and three children.

LTC Michael P. Anderson, payload commander. Michael Anderson, 43, was a lieutenant colonel in the U.S. Air Force, where he served as an instructor pilot and tactical officer. Anderson received a bachelor of science degree in physics/astronomy from University of Washington in 1981 and a master of science degree in physics from Creighton University in 1990. Selected by NASA in December of 1994, Anderson flew on STS-89 in 1998 and has logged over 211 hours in space. Anderson leaves behind a wife and two daughters.

CAPT David M. Brown, mission specialist 1. David Brown, 46, was a captain in the U.S. Navy and served as a naval aviator and flight surgeon. Brown received a bachelor of science degree in biology from the College of William and Mary in 1978 and a doctorate in medicine from Eastern Virginia Medical School in 1982. This was Brown's first space flight.

Dr. Kalpana Chawla, mission specialist 2. Kalpana Chawla was an aerospace engineer and an FAA certified flight instructor. She received a bachelor of science degree in aeronautical engineering from India's Punjab Engi-

neering College in 1982, a master of science degree in aerospace engineering from the University of Texas-Arlington in 1984, and a doctorate in aerospace engineering from the University of Colorado-Boulder in 1988. Chawla was the prime robotic arm operator on STS-87 in 1997 and had logged more than 376 hours in space prior to the *Columbia* flight. Chawla was the first Indian-born woman in space and leaves a husband behind.

CDR Laurel Blair Salton Clark, mission specialist 4. Laurel Clark, 41, was a commander in the U.S. Navy and a naval flight surgeon. She received a bachelor of science degree in zoology from the University of Wisconsin-Madison in 1983 and a doctorate in medicine from the same school in 1987. The *Columbia* flight was Clark's first space flight. She leaves behind a husband and an 8-year-old son.

COL Ilan Ramon, payload specialist 1. Ilan Ramon, 48, was a colonel in the Israeli Air Force. Ramon received a bachelor of science degree in electronics and computer engineering from the University of Tel Aviv in 1987. He served as a fighter pilot during the 1970s, 80s, and 90s and was a veteran of the Yom Kippur War in 1973, as well as the 1982 war in Lebanon. The *Columbia* flight was Ramon's first, and with it he became the first Israeli in space. He leaves behind a wife and four children.

As you can see, this group of individuals would stand out in any company, and it is right that the country should mourn their loss. And as the country mourns, it is especially important that we remember the friends and family of the lost astronauts. If just their accomplishments and dedication to their countries can cause whole nations to mourn, I can only imagine the grief of those who knew them personally and lost not only a national hero, but a friend, or spouse, or parent. I can only hope the knowledge that the thoughts and prayers of entire Nations are with them will provide some small comfort.

While our Nation grieves deeply for these men and women who have made the ultimate sacrifice in the name of their countries, we take solace in the fact that we will benefit immeasurably for years to come from their dedication and hard work. The crew of the *Columbia* surely represented the best of this world. They entered space not just as members of one nationality, race, or religion, but as fellow human beings. The crew members risked and ultimately sacrificed their lives, not for personal gain, but for the advancement of science and the betterment of humankind. It is for these reasons that I want to say thank you to COL Rick Husband, CDR William C. McCool, LTC Michael P. Anderson, CAPT David M. Brown, Dr. Kalpana Chawla, CDR Laurel Blair Salton Clark, COL Ilan Ramon, and all their friends and family who have shared in their sacrifice.

Mr. SARBANES. Mr. President, we are deeply saddened by Saturday's loss of seven astronauts as they returned

from a 16-day voyage aboard the space shuttle *Columbia*. The tragic loss of the crew of mission STS-107 touches not only all Americans, but also many members of our larger, global community. As we honor the courageous men and women of the *Columbia* and mourn their loss, our thoughts and prayers are with their families and loved ones.

The seven men and women aboard the *Columbia* were truly a select group of explorers. They represented the vast range and distinction of our nation's skills and achievements; all had extensive training in various fields of scientific inquiry. At the same time, they represented America's finest aspirations. Diverse in their origins, they shared a dream of space travel, and they lived and worked together in a common spirit of cooperation, curiosity, and courage.

Michael Anderson, *Columbia*'s payload commander, spoke for all the crew when he said the following, in an interview appearing in the Baltimore Sun this past Sunday:

I take the risk because I think what we're doing is really important. For me, it's the fact that what I'm doing can have great consequences and great benefits for everyone, for mankind.

Research was the primary mission of STS-107. The *Columbia* carried 32 payloads with material for 59 separate investigations. Among these payloads were student experiments from Australia, China, Israel, Japan, Liechtenstein, and the United States. State-of-the-art communications equipment allowed earthbound researchers and the global public to witness experiments as they were being performed. To make the most of their 16 short days in space, the seven astronauts worked in two shifts, around the clock. We have suffered the grievous loss of our astronauts. But the astronauts completed much of their mission.

We can honor the crew of mission STS-107, Colonel Rick D. Husband, Commander William McCool, Lieutenant Colonel Michael P. Anderson, Captain David M. Brown, Dr. Kalpana Chawla, Commander Laurel Blair Salton Clark, and Colonel Ilan Ramon, by rededicating ourselves anew to the mission they so vigorously embraced. We must have a prompt and thorough account of the events that brought down the *Columbia*, but we must not let our great sense of loss deter us from continuing their work. For more than forty years, the space program has played a vital role in our broader national research efforts. Our space explorations have led to scores of new discoveries, which have given us not only better insights into the universe but also a better understanding of the earth, and of life here on earth. We will remain forever grateful to the crew of the *Columbia* for the legacy they have left us, and the example they set.

The PRESIDING OFFICER. The Senator from Rhode Island is recognized.

Mr. REED. Mr. President, I rise today to join my colleagues and the

country in remembering the seven brave crewmembers of the Space Shuttle *Columbia* who tragically lost their lives last Saturday morning, February 1, 2003.

Rick Husband, William McCool, Michael Anderson, Kalpana Chawla, David M. Brown, Laurel Blair Salton Clark, and Ilan Ramon gave their lives trying to expand our knowledge of science, advance our technology, and broaden the limits of our universe.

These seven courageous astronauts sacrificed their lives for our future. While this is a time of great sadness, it is also a time to take great pride in their achievements, their dedication, and their service to the Nation and to the world.

They were seven different people with various skills, many talents, and different backgrounds, and they all came to work together as a team. That is what most people believe America should be like: working together as a team to accomplish something greater than themselves. They could have had very comfortable jobs somewhere else, but they chose to risk their lives for the country. They have not only found a place in our hearts, but they have found a place in our imagination also because, for me, they represent what this country is all about. They came together. They came from modest circumstances. They used the power of education to prepare themselves not just for personal success but to contribute to the Nation and to contribute to the world. They exemplify the best of this Nation.

They understood that great accomplishment and great achievement bring great risk. They knew this, yet they valiantly accepted, in the name of science and exploration, all the risks. It is important we pay tribute to them and acknowledge the risks our astronauts take with every mission.

We tend to take these risks for granted and forget the extreme conditions and pressures these brave men and women face and will face in the future. In honor of the crew of *Columbia*, we must not take these risks for granted any longer.

In their honor, we must pledge to continue the peaceful exploration of space. We have forged international partnerships. We have been able to share the pride of an international space station. We must continue to fund NASA, continue our space programs, and continue in the tradition of American and human accomplishment.

Later this year, we will celebrate the 100th anniversary of the Wright brothers' monumental 59-second flight on December 17, 1903. That flight forever changed the world. Fifty-four years later, we were able to put a man in space.

The process of innovation and exploration must go on, and America must play its traditional significant, historic role.

We have in our process from the sands of Kitty Hawk to the stretches of

the Moon experienced powerful joy and monumental success, and yet we have faced tremendous setbacks and extreme sorrow. But we have persevered, and we have continued our missions into the heavens.

From our colleague John Glenn and Allan Shepherd to Neil Armstrong to an international space station, and from the crew of *Challenger* and the crew of *Columbia*, we must continue to challenge ourselves as they challenged themselves. We must continue to better ourselves as a nation and continue to grow.

President Kennedy challenged America to send a man to the Moon. We have met that challenge and have gone far beyond.

As we continue with future missions, we must never forget these seven brave souls. They gave the ultimate sacrifice for a noble cause. My deepest condolences go out to their families and the Nation that mourns them and the country of Israel that mourns its lost astronaut. This is a time for mourning, but we must shortly move on and continue to run the great risks they took, in their memory, so we can build upon their sacrifice, so we continue to reach for the heavens and beyond.

I yield the floor and suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. ENSIGN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

#### RECESS

Mr. ENSIGN. Mr. President, I ask unanimous consent that the Senate stand in recess for the policy lunches and that it reconvene at 2:15 p.m.

There being no objection, the Senate, at 12:27 p.m., recessed until 2:16 p.m. and reassembled when called to order by the Presiding Officer (Mrs. DOLE).

#### COMMEMORATING THE "COLUMBIA" ASTRONAUTS—Continued

The PRESIDING OFFICER. There are now 5 minutes evenly divided.

Mrs. HUTCHISON. I yield 1½ minutes to Senator BENNETT from Utah.

Mr. BENNETT. Madam President, all that needs to be said has been said by the President and others about the shuttle disaster. I simply note the people of Utah are particularly distressed, not only with the human tragedy that affects all Americans but because the space program is very close to the hearts of all Utahans.

My predecessor in the Senate, Jake Garn, was an astronaut on the shuttle. The Jake Garn Space Center at Utah State University is named after the Senator. The schoolchildren of Utah assembled project "Star Shine," which was a school science project that was

carried into space by the shuttle. So all Utahans join in expressing our condolences to the families, and our determination that space exploration by this country will nonetheless still go forward.

Mrs. HUTCHISON. Madam President, Senator NELSON and I attended, along with many other Senators, the beautiful service yesterday honoring these brave astronauts that we now know so much more about. Today the Senate is commemorating these *Columbia* astronauts and reconfirming the importance to our country that space research has been and will continue to be.

In the resolution we talk about U.S. Air Force COL Rick Husband, the mission commander, who was from Texas; U.S. Navy commander, William Willie McCool, the pilot; U.S. Air Force LTC Michael Anderson, payload commander, mission specialist; U.S. Navy CAPT David Brown, mission specialist; U.S. Navy commander Laurel Blair Salton Clark, mission specialist; Dr. Kalpana Chawla, mission specialist; and Israeli Air Force COL Ilan Ramon, payload specialist. They were killed in the line of duty. The Senate is honoring them today.

Debris has been recovered in 38 counties of my State, spreading over a surface area of 28,000 square miles, an area the size of West Virginia. The Space Shuttle *Columbia* broke up 40 miles above the ground.

It is my honor to cosponsor this resolution with Senator NELSON, the only Member of the Senate who has actually been on a manned space flight, and Senator Glenn, of course, before him. He has been a great resource on the committee.

Before turning it over to Senator NELSON of Florida, I ask for the yeas and nays.

The PRESIDING OFFICER. Is there a sufficient second? There is a sufficient second.

The yeas and nays were ordered.

The PRESIDING OFFICER. The Senator from Florida.

Mr. NELSON of Florida. Madam President, how much time remains in the debate?

The PRESIDING OFFICER. The Senator has 2½ minutes.

Mr. NELSON of Florida. Madam President, it is with sadness that I rise to join my colleague from Texas to support this resolution. So many of our colleagues have joined us. We thank you very much for joining us yesterday as we went to the space center in Houston.

This is a resolution that not only talks about the past, and about bravery, but it talks about the future. It talks not only about honoring the legacy and the lives and the sacrifice of these brave souls but also about fulfilling America's destiny as a nation of explorers and adventurers.

This resolution is about the vision that ignites the heart of almost every American, to think that we are pushing back the frontier. As we developed