on improving both the technical experience of the labor force and worker commitment to safety.

The ''Brookwood-Sago Mine Safety Grants'' program is poised to become an invaluable resource for institutions like the Western Energy Training Center in improving the safety record of America's energy industry.

The MINER Act is the first substantial overhaul of our nation's mining laws in almost three decades and is an essential step to remedying the many health and safety shortfalls facing coal miners today. I urge all of my colleagues in the U.S. House of Representatives to support the passage of this legislation.

DEPARTMENT OF HOMELAND SECURITY APPROPRIATIONS ACT, 2007

SPEECH OF

HON. JOHN ABNEY CULBERSON

OF TEXAS

IN THE HOUSE OF REPRESENTATIVES

Tuesday, June 6, 2006

The House in Committee of the Whole House of the State of the Union had under consideration the bill (H.R. 5441) making appropriations for the Department of Homeland Security for the fiscal year ending September 30, 2007, and for other purposes:

Mr. CULBERSON. Mr. Chairman, one of the most important features of America's homeland security will be our ability to preserve America's leadership in high technology and scientific research. It has been my singular privilege to know and learn from one of the greatest scientists in our Nation, Dr. Richard Smalley of Rice University, and to represent him in the United States Congress. Today I want to honor him and his family and his colleagues at Rice University by celebrating his birthday, and giving thanks to God for bringing Rick into our lives. America lost him last year to cancer, yet the extraordinary research he was pursuing into carbon nanotubes and ''buckyballs'' will undoubtedly one day help lead us to a cure for cancer. Rick Smalley helped me understand that nanotechnology will change our lives as profoundly in the 21st century as oil and electricity changed our lives in the 20th century, and he lit a fire in me to do everything in my power to harness the immense human, medical, technological and financial capital of the Texas Medical Center into identifying and curing human diseases and making America truly energy independent by creating the Alliance for NanoHealth. The Alliance is my single highest priority for funding with our limited tax dollars in my work on the Appropriations Committee, and I am immensely proud that I could launch the Alliance with Rick and his colleagues at Rice and at all of the great institutions of the Texas Medical Center. The Alliance is thriving, especially now that it has the final key ingredient it was lacking, a dynamic and brilliant scientist as president, Dr. Mauro Ferrari. All of the pieces are in place for the Alliance to lead the world in identifying and curing cancers at the very earliest stages before they even become visible tumors. All of the pieces are in place for the Alliance to help make America energy independent of the Middle East and the rest of the world by using the single wall carbon nanotubes Dr. Smalley discovered, and so many other aspects of nanotechnology research and manufacturing that he pioneered. Rick Smalley will always inspire me and fill me with energy and enthusiasm to help America achieve the great dreams he saw for our future by harnessing nanotechnology. My hero Thomas Jefferson liked to say that he liked the dreams of the future better than the memories of the past, which was the way Rick Smalley lived his life. I will always honor Dr. Smalley by doing my very best to make his dreams of the future come true—an America that is energy independent, no longer reliant on fossil fuels, and where no one need suffer or die from cancer.

It is appropriate and fitting, Mr. Chairman, that I add to the CONGRESSIONAL RECORD a few of the tributes offered by his family and friends at his memorial service.

RICHARD E. SMALLEY: A LEGACY OF HOPE

(By Deborah S. Smalley)

I have meditated often upon the gifts that Rick has left us. And though time will tell the full story, I believe our greatest inheritance from this amazing man is hope for the future. Rick may well be remembered as the father of nanotechnology; he was certainly its rock star. He had every outstanding honor and award a chemist could earn, and his knowledge of science and the world extended far beyond his field. Who knows what applications for the betterment of humanity will come from his revolutionary research and inventions? His status as a Nobel Laureate was fascinating enough to keep me involved in a forty-five minute attempt to shake his hand during a conference at Rice University. I had no idea that as we met, my life would be changed forever.

I had taught high school science for 17 years, and sadly enough, my world view offered the students little good news for the long term future of man on earth. The problems we were facing as a growing population would almost certainly become insurmountable by the time we reached 10 billion people. I had come outside the classroom looking for answers. Dr. Richard Smalley shook my hand, and began to fill my mind with a vision of a clean world with abundant energy. He had a plan, and it gave hope. He opened the door to a new world of plenty and set the rod by which we must measure our efforts. He showed that there was a way; thereby placing the burden for action squarely on our shoulders. We can ignore it, but cannot plead ignorance. The prophet had spoken.

He told me that the means for gaining that future were just out of reach, but doable. Who knows, perhaps this is the very blessing we needed most. If he had done it for us, or if we could shift the responsibility to someone else, then we would miss the opportunity to demonstrate the magnificent qualities deeply imbedded within us all; those beautiful giftings that shine forth in times of great challenge.

In order to bring forth the spirit that can pull us from complacency and self-focus into the higher realm of courage, honor, and altruism we need clear vision coupled with the opportunity for action. Rick gave us all of that. By making his solution inclusive, everyone became a player. None of us can in good consciousness sit back assuming that someone more talented, capable, or concerned will take care of it. There is an enormous need to empower Americans so that we will take charge of our circumstances and make a difference in this world. Rick recognized energy as the one issue touching every single one of us every day, and put out an alert for children to ''be a scientist and save the world.'' I saw him give the message to over seven hundred children, from sixth to twelfth grades, at-risk to honors. They were so attentive, you could hear a pin drop.

A hopeless future instills in our youth a sense of urgency to serve themselves; an attitude devastating to their character and spirit. But when a great scientist, a trusted son with a Nobel Prize says we can supply energy for 10 billion people, thereby making possible at least a reasonable standard of living for all God's children, our faith is stirred, and the impossible is slowly supplanted by the possibilities. We need our children, all of them, to be involved in the making of a whole new era. Science and engineering does produce the technology that sets the stage for building our world, and this vision of a world where we can address shortages that lead to poverty, war, disease, and ignorance through an abundance of clean energy, gives hope.

When I finally got my turn to meet Dr. Richard Smalley, he was clearly excited by my profession as a science teacher. I still remember the intensity of his blue eyes as he told me that our biggest problems were solvable, but that he needed my students filled with a sense of mission and purpose to create a new future, and then asked me if I thought they were up for the challenge. In that moment, I fell irrevocably in love—in love with the vision, in love with the passion, and in love with the man who brought hope to our world, our children and to me.

[From Science Magazine, Dec. 23, 2005]

RICHARD E. SMALLEY (1943–2005)

(By W. Wade Adams and Ray H. Baughman)

Richard Errett Smalley, who died on 28 October 2005 after a 7-year fight with cancer, unselfishly used his stature and wisdom to inspire a worldwide nanotechnology revolution. His breakthroughs, his inexhaustible enthusiasm for exciting young people about science, and his awakening the world to possible nanotech solution to the energy crisis have left an enduring legacy. In only 40 years of applying his powerful intellect to science and technology, his work led to entirely new types of materials and fields of study, revolutionary apparatus for scientific investigations and commercialization, and a deep understanding of behavior on nano and molecular scales. Along the way he shared the 1996 Nobel Peace Prize in Chemistry for codiscovering the soccer-ball shaped C_{60} fullerene molecule.

Born in Akron, Ohio, on 6 June 1943, Smalley's interest in science began in his early teens as he and his mother collected single-cell organisms from a local pond and studied them with a microscope. He learned from his father how to build and fix mechanical and electrical equipment and from his mother mechanical drawing, so that he could be more systematic in design work. Many decades later, Rick's passion for creative design was still evident on his office walls—diagrams showing his most recent improvements on equipment for producing carbon nanotubes. Although his contributions to physics and engineering were landmarks, chemistry was his first love. The detailed periodic table of the elements that he drew on rafters in the attic where he studied as a youngster marked his early fascination with chemistry.

He pursued this love, from undergraduate studies at Hope College and the University of Michigan to the Shell Chemical Company, where he worked as a quality control chemist in a polypropylene plant. Rick said, ''These were fascinating days, involving huge volumes of material, serious real-world problems, with large financial consequences.'' He learned about industrial-scale processes and the importance of efficient catalysts, which were useful much later when he initiated

scale-up of carbon nanotube synthesis. After 4 years, he resumed academic studies and earned his Ph.D. in 1973 from Princeton University, focusing on the chemical physics of condensed phase and molecular systems with thesis advisor Elliott Bernstein.

During postdoctoral study with Donald Levy and Lennard Wharton of the University of Chicago, and later with Daniel Auerbach, Rick helped develop a powerful technique: supersonic beam laser spectroscopy. As a result, chemical physicists can now drastically simplify spectroscopy of complex molecules. Using the coldest part of expanding gas, researchers could achieve temperatures below 1 K, thereby freezing the rotations of moderate-sized molecules and complexes. After joining the faculty of Rice University in 1976, Smalley worked together with Robert Curl to produce a sequence of pioneering advances applicable for making and characterizing very cold supersonic beams of large molecules, radicals, and atomic clusters having precisely known numbers of atoms.

In August 1985, Smalley and Curl were joined by Harold Kroto from the University of Sussex for a short summer project to study interesting carbon cluster distributions found by Andrew Kaldor at Exxon using an apparatus constructed by Smalley's group. After a legendary late night of taping together cardboard cutouts of hexagons and pentagons on his kitchen table, using Kroto's insights into the importance of five-carbon rings, Smalley presented the carbon ''soccer ball'' as the only sensible way that 60 carbon atoms could be assembled to produce the observed spectra. A new field of scientific investigation was thus born, and then fueled by a seemingly continuous barrage of exciting new results from both Rick's laboratory and others across the world, which showed the diversity of carbon cage types, how their production could be scaled up, the diverse ways they can be modified, and their novel physical and chemical properties.

In 1993, Rick redirected much of his group's work to carbon nanotubes, which can be viewed as theh cylindrical version of carbon cage molecules, and Rick and his co-workers became leaders in the field. His experimental skills were again critical as his team developed the laser ablation and the high-pressure carbon monoxide processes for making single-walled carbon nanotubes. Rapid worldwide scientific progress was assisted by Rick's providing access to these high-quality nanotubes, first through a non-profit effort at Rice University, and then through the successful company he founded in 1999, Carbon Nanotechnologies, Inc.

Many call Rick the grandfather of nanotechnology. He was the most cited author in nanotechnology in the last decade, and his pivotal scientific and technological breakthroughs have inspired worldwide commercialization efforts. Because of Rick's key role in creating the National Nanotechnology Initiative, he was the only academic invited to the November 2003 Oval Office signing ceremony. His vision of using nanotechnology to help solve the energy crisis and to improve health through nanomedicine is motivating governments to fund effective programs. Many will dedicate themselves to a goal that Rick focused upon during his last 4 years of life: a carbon nanotube quantum wire cable much stronger than steel that would carry a current 10 times as high as that carried by copper wire and weigh one-sixth as much.

With his passing, the world lost a great intellect in chemistry, physics, and engineering, but we also lost a great advocate for science and technology and a great educator and mentor. Robert Curl said that ''Rick was a visionary, and his charisma and logic made those he worked with buy into the vision. Rick convinced us that we could be better, stronger, and take more chances if we just tried. I hope that we don't forget—then his legacy . . . will make a lasting transformative difference.'' In his humble way, Rick simply said that science and life go on.

RICHARD SMALLEY MEMORIAL REMARKS BY MALCOLM GILLIS

My first encounter with Rick Smalley came in 1993, when he served on the President's Search Committee. Rick peppered me with some really tough questions about the Free Electron Laser, which I helped bring to Duke. From his comments, I realized then and there that he was far more than an outstanding chemist; rather his interests ranged deep and wide into physics, mathematics and engineering. In the years to come, I came to regard Rick as one of the world's paragons of interdisciplinary understanding and insight. Rick's scientific interests and questioning nature could never be confined to any kind of disciplinary boundary.

The full implications of the legacy left by Rick's work will not be known for several decades. What we do know is that in 2006, one does not open a copy of Science or Nature or Journal of Applied Physics or Surface Science or engineering journals or medical journals without finding at least one article or review on nanoscience or nanotechnology. No one can lay a better claim for responsibility for this phenomenon than Rick Smalley and his collaborators here at Rice and across the earth.

And while Rick was pleased and even proud of the snowballing applications of nanotechnology, he was always careful to turn the spotlight on the work of other pioneers in nanoscience and nanotechnology. It comes as no news to anyone that Rick had a droll sense of humor lurking just beneath his deep intellect. An example: The word ''nano'' has its root in the ancient Greek word for dwarf. But Rick once cracked that for many PIs all over the globe, the root for nano came from a newer verb: ''to seek research grants.''

Honors of all stripes came to Rick during his all-too-short lifetime. However, he cared little for honors and very greatly about nanotechnology's potential for resolving pressing human problems in food supplies, energy accessibilities, medical diagnosis and medical treatment. I observed in the final year of his life, his primary inspiration for his dogged, determined battle against disease had first to do with his family and second his desire to witness the fruition of a few more of the social benefits he expected from innovative use of buckyballs, nanotubes and other particles.

We will all remember Rick for many, many things. We will remember that in Fall 1996, when he and Bob Curl shared the Nobel Prize with Kroto, both were teaching undergraduate chemistry. I will remember him for his boundless energy, dry wit and tolerance of the quirks of others.

We admired him not only for his intellect but also for his humanity. Speaking for myself, I have yet to adjust to the absence of his presence. On several occasions since October, I have reached for the phone to call Rick to ask him to help me understand such things as the quantum hall effect or quantum dots, only to realize that neither landlines nor cell phones could reach that far.

Ehamos de menos muchisimo, el Doctor Smalley. We miss you greatly Dr. Smalley.

PAYING TRIBUTE TO THE LAW ENFORCEMENT EXCHANGE PROGRAM

HON. JON C. PORTER

OF NEVADA

IN THE HOUSE OF REPRESENTATIVES

Monday, June 12, 2006

Mr. PORTER. Mr. Speaker, I rise today to pay tribute to the Law Enforcement Exchange Program, sponsored by the Jewish Institute for National Security Affairs. I am proud to recognize this organization for its progress in better training law enforcement officials in the prevention of and response to terrorist attacks.

Since the events of September 11, 2001, the prevention of and response to terrorism have become important aspects of law enforcement training. While American law enforcement officials have been a vital asset in the war on terrorism, they require more training in order to become more effective in their fight to prevent terrorist attacks at home.

Because they have had many years of experience and have developed specialized skills in dealing with all aspects of terrorism, the Israel National Police are considered the number one police force worldwide in prevention of and response to terrorist attacks. In 2002, the Jewish Institute for National Security Affairs (JINSA) created the Law Enforcement Exchange Program (LEEP) in coordination with the Israel National Police and other Israeli agencies to help improve the training for American law enforcement officers in the counter-terrorism realm. The program consists of three core aspects: a trip to Israel for selected high-ranking law enforcement officials to learn first-hand Israeli police tactics; conferences held in the United States to reach a broader law enforcement audience; and finally, a process of dissemination, in which the practices learned are extended throughout the law enforcement community to those unable to attend conferences. This three-part program will provide immediately useful information to law enforcement officials nationwide.

I am pleased to say that one such conference will be held in Las Vegas, Nevada. A reception recognizing the program will be held on June 11, 2006 at the Bellagio Hotel, and I am honored to recognize a few of the distinguished guests of this event. The current Vice President of JINSA, David Justman, will offer the welcoming remarks. Steve Pomerantz, former Assistant Director of the FBI, now serves as the Director of counter-terrorism for JINSA. In 2004, Yoram Hessel retired as Director of the Global Operations, Intelligence, and Foreign Relations Division of the Mossad, after holding the position for 4 years. ''Rolli'' is currently a Senior Officer of the Israel Security Agency, a department for which he has dutifully served 15 years. Assistant Sheriff Rod Jett of the Las Vegas Police Department, a Las Vegas native and distinguished law enforcement official, will share with us his experiences in the 2005 LEEP program and how he believes the conference will benefit the Las Vegas community. These fine men have all contributed immensely to this important issue and I am glad to have the privilege of speaking along side of them.

I rise to acknowledge the hard work of these individuals and all who have participated in making LEEP a vital component of law enforcement training across America in the difficult fight against terrorism.