

Coalition Chronicle

Report to the National Industrial Base Workforce Coalition

Vol. 9, Issue 1

Winter 2005-2006



DoD photo by Helene C. Stikkel. (Released)

Deputy Secretary of Defense Gordon England meets with members of the *National Industrial Base Workforce Coalition* in the Pentagon on March 3, 2006.

Coalition Meets New DoD Leadership

In the spring of 2005, the Department of Defense began a comprehensive review of its acquisition process. The review was undertaken in an attempt to identify ways to reduce the escalating cost of programs, schedules and cycle time. Over the years, there have been more than 120 such reviews, but given the squeeze on defense dollars, this review takes on added significance. The *Defense Acquisition Performance Assessment* was directed by **J. David Patterson** (now Principal Deputy Under Secretary of Defense-Comptroller), someone who is well known to unions in the *National Industrial Base Workforce Coalition*. For more than a decade, Patterson has met with member unions in the *Coalition*. It is little wonder, then, that his review of the

acquisition process not only involved interviews with corporate CEOs and program managers but also included the presidents of local unions. It was the first time that labor unions were ever invited to participate in such an important analysis.

On March 3, the unions that were interviewed in the review were invited to DoD and thanked for their contribution. Originally the host of the meeting was to be Deputy Defense Secretary **Gordon England**. But when other DoD officials learned of the union visit, they also chose to host meetings. These included Secretary of the Air Force, **Michael Wynne** and Assistant Secretary of the Navy for Research, Development and Acquisition, **Dr. Delores Etter**.

See DoD, page 2

Inside This Issue

Survey of Workforce Leaders	6	Crew Exploration Vehicle Update	18
Reversing Industrial Base Decline	8	Member Spotlight on Joseph P. Grabowski	19
Restoring America's Industrial Base	13	Welder	20
Our Space Programs: A Perspective	15		

Coalition Meets DoD Leaders



DoD photo by Helene C. Stikkel. (Released)

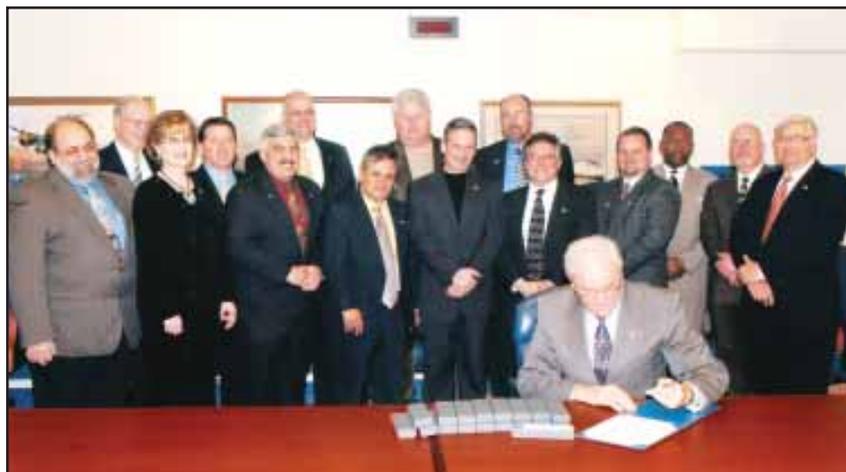
Deputy Secretary of Defense Gordon England meets with members of the *National Industrial Base Workforce Coalition*. To the Secretary's left is David Patterson, Principal Deputy Under Secretary of Defense Comptroller (former Director, Defense Acquisition Performance Assessment Project).

From DoD, page 1

Also present at these meetings was **James Finley**, Deputy Under Secretary of Defense for Acquisition, Technology and Logistics, **William C. Anderson**, Assistant Secretary of the Air Force for Installations, Environment and Logistics, and **Jerry Jones**, Special Assistant for Transition Organizational Planning.

Meeting with Michael Wynne, Secretary of the Air Force

Early in the day, the *Coalition* met with Air Force Secretary Michael Wynne. He used the occasion to sign a document launching the OSHA Voluntary Protection Program (VPP) throughout the Air Force. This pilot program begins at nine installations to establish a baseline for service-wide implementation. Secretary Wynne presented all of those in at-



DoD Photo

Secretary of the Air Force Michael W. Wynne signs document launching the OSHA Voluntary Protection Program throughout the Air Force, piloting the program at nine installations to establish a baseline for service-wide implementation, as members of the *National Industrial Base Workforce Coalition* look on.

tendance with a pen to commemorate the signing of this important Air Force document.

The Secretary remarked on his history with the *Workforce Coalition*, having hosted a meeting with some of those in attendance three years earlier as then-Deputy Under Secretary of Defense for Acquisition, Technology and Logistics. Mr. Wynne focused the majority of his attention on reducing cost and schedule and improving performance. Recalling the discussion he had three years earlier with unions, including the UAW from Boeing's Philadelphia Tiltrotor facility, Mr. Wynne urged today's attendees to emulate the culture change that took place at that plant.

Because of the turnaround in

See DoD, page 3

Coalition Chronicle

National Industrial Base
Workforce Coalition

Representing American scientists, engineers, technical, professional, service and production workers in maritime, aerospace, defense, electronics, energy, telecommunications, transportation, pharmaceutical, and basic industries in both the public and private sectors.

Michael P. Balzano
Executive Director

Ruthanne Goodman
Managing Editor

Janel Pennington
Editorial Staff

Christopher Balzano
Editorial Staff

Karen E. Loss
Design/Production Manager

A Seasonal Publication
Balzano Associates
1730 North Lynn Street, Suite 504
Arlington, Virginia 22209
(703)276-2288 Fax (703)276-1415

Coalition Meets DoD Leaders

From DoD, page 2

the Tiltrotor Division, present in the meeting with Secretary Wynne was **Scott Adams**, UAW International Representative and the Director for Education & Training in UAW Region 9. Other UAW regions are seeking to employ the same techniques in their facilities that brought about the culture change in Philadelphia.

Secretary Wynne also emphasized the importance of bringing back the Independent Research and Development (IRAD) program to support R&D right here in the U. S. as opposed to going abroad for needed workers and thinkers.

Charlie Bofferding, Executive Director of the Society of Professional Engineering and Employees in Aerospace (SPEEA), responded that early in his engineering career he worked in the IRAD area. He said, "As we invest in technology, we must invest in the manufacturing base. Not just in those who design, but also those who make."

The meeting ended with Mr. Wynne asking Mr. Balzano to work with the Secretary's key people on areas where cost, schedule and performance could be advanced by working with the workforce.

Meeting with Gordon England, Deputy Secretary of Defense

Our meeting with Deputy Secretary of Defense Gordon England was scheduled for 2:00 pm, but he surprised the group by hosting a luncheon in the Secretary's private dining room. This forum provided an informal atmosphere for union leaders to speak with Mr. England.

During the luncheon, **Mark Glyptis**, President of the Independent Steelworkers Union, remarked on the need to examine the U.S. shipbuilding industry with respect to its importance to America's steel in-

See DoD, page 4



DoD Photo

Secretary of the Air Force Michael W. Wynne met with representatives of the *National Industrial Base Workforce Coalition* to discuss reducing cost and schedule and improving performance, and resuming the IRAD program.



DoD Photo



DoD photo by Helene C. Srikkel, (Released)

Deputy Secretary of Defense Gordon England meets with members of the *National Industrial Base Workforce Coalition* in the Pentagon. To his right is James Finley, Deputy Under Secretary of Defense for Acquisition, Technology and Logistics, and Jerry Jones, Special Assistant for Transition Organizational Planning.

Coalition Meets DoD Leaders



Chris Balzano Photo

Chico McGill, Director Government Employees Department International Brotherhood of Electrical Workers poses a question to Dr. Etter.

From DoD, page 3

industry. He noted that the decline in shipbuilding has had a negative impact on the steel industry and raised a concern about the proliferation of domestic U. S. steel mills now under foreign ownership.

With respect to the industrial base, **Jerry Jones** commented on a visit he made to Northrop Grumman Newport News shipyard and talked about the apprenticeship program. Jones made a reference to skills taught to nuclear welders and noted how welders are taught to weld the unseen portions of pipes by using a hand-held mirror.

Alton Glass, President of USWA Local 8888 at the Newport News Shipbuilding Facility in Newport News, Virginia, brought his experience as a nuclear welder (See related article, pages 8-11) and shipbuilder to the discussion regarding this important skill. "If you think it's hard welding in a training booth, you ought to try it in the space allotted to welders on board ship," Glass said.

Deputy Secretary England used the opportunity to talk about safety, saying that while combat is always dangerous and the risks and losses must be accepted in context,



Chris Balzano Photo

Dr. Delores Etter, Assistant Secretary of the Navy for Research, Development and Acquisition with members of the *National Industrial Base Workforce Coalition*.

he emphasized that the unexpected and tragic injuries and deaths of soldiers due to accidents were given his special attention. He said, "Accidents that result in death are the hardest to write the parents about."

Mr. Balzano noted that on two occasions he went to Mississippi to visit the Metal Trades union and during the meetings **Chico McGill** was called away because one of his men was electrocuted. During the luncheon Chico told Mr. England that he was so concerned with the safety issue for IBEW members that over the years he has served on several safety committees including the Maritime Advisory Committee to OSHA (MACOSH) and the National Safety Council, a non-profit public service organization.

Following lunch, in the more formal setting of his conference room, Mr. England walked through the importance of the acquisition review, stating that instability in programs is bad for companies, investors, and workers and costs money that should go into the programs. He referred to David Patterson's efforts as Director of the *Defense Acquisition Performance Assessment* project, which reviewed DoD business practices and making the military more flexible.

At the end of the meeting the Deputy Secretary related an anecdote regarding a 9-year-old girl whom when questioned about the definition of patriotism responded: "Patriotism is taking care of America." The Secretary continued, "Therefore, today I want to thank you for your patriotism because you take care of America." He then departed leaving David Patterson to discuss some of the findings of the acquisition study.

Mr. Patterson then handed ev-

See DoD, page 5

Coalition Meets DoD Leaders

From DoD, page 4

ery union in attendance a copy of the study and discussed the results of the acquisition review (*see complete story by Patterson elsewhere in this issue*). He related that “we are all of the same mind,” and that “the system is not broken just less than perfect.”

Also noted by Mr. Patterson was that the purpose of the study was to get the views of people behind the scenes to get a sense of the direction needed to eliminate such critical problems as the 20% to 40% of defense programs that are over cost, behind schedule or not performing. “We must break this cycle,” Patterson said.

James Splawn, President of UAW Local 848 in Texas asked Patterson a question about the DAPA Panel recommendations to establish CEO roundtable discussions hosted by the Deputy Secretary of Defense. Splawn wondered if labor leaders would also be invited to those roundtable discussions. Patterson replied, “This is the first group, there will be more.”

Also present at the England meeting was **James Finley**, the new Deputy Under Secretary of Defense for Acquisition, Technology and Logistics who was sworn in the day before our meetings. Mr. Finley now occupies the same position held by Air Force Secretary Michael Wynne at the time he first met the *Workforce Coalition* three years earlier. Mr. Finley expressed his eagerness to work with the *Coalition* on issues of cost, schedule and performance. He has oversight on all of those acquisition programs that constitute the lion’s share of the defense budget. These programs are referred to as ACATID programs, i.e. acquisition category number one. As with Mr. Wynne,



Chris Balzano Photo

Alton H. Glass (3rd from right), President, United Steelworkers of America Local 8888 discusses with Dr. Etter the skill crafts taught at Northrop Grumman’s Newport News Shipyard.

when he was the Deputy Under Secretary, the *Coalition* will work closely with Mr. Finley on ways of reducing cost.

Meeting with Dr. Delores Etter, Assistant Secretary of the Navy, Research, Development & Acquisition

Following the meeting with Gordon England, the *Coalition* met with Dr. Delores Etter, Assistant Secretary of the Navy for Research, Development & Acquisition. Dr. Etter has a distinguished career which includes having served as the Deputy Under Secretary of Defense for Science and Technology and having taught at the U. S. Naval Academy. Although in her new position for a few months, she has spent much of that time visiting shipyards and meeting with shipyard workers.

During the meeting, Dr. Etter talked about her interest in preserving America’s industrial base. She feels that the Department of the Navy must have a partnership with its industrial base suppliers. Dr. Etter clearly projects the theme that we are all in this together.

As with the meeting with Deputy Secretary England, the subject of apprenticeship programs

was discussed. United Steelworkers of America Local 8888 President, Alton Glass, repeated the comments he made to Mr. England concerning the skill crafts taught at Newport News Shipyard. Dr. Etter made it clear that she will devote time and energy to examine the needs of the nation’s shipyards and the apprentice programs.

Chico McGill, Director Government Employees Department of the International Brotherhood of Electrical Workers addressed the subjects of shipyard capacity and the need to preserve the rapidly disappearing skill base created by craftsmen now retiring.

Dr. Etter’s portfolio also extends to naval aircraft. Here she has oversight on such important programs as the V-22 Osprey and the U. S. Marine Corps’ H-1 Helicopter as well as the U. S. Navy’s Multi-Mission Maritime Aircraft (P-8A MMA).

Dr. Etter assured *Coalition* members that she would be paying close attention to those issues of concern that were raised during the acquisition review. She also expressed an interest in visiting more facilities during her tenure, and was eager to take a photo with the group at the close of the meeting. ❖

Survey of Workforce Leaders

Asking People Who Know (A Survey of Organized Workforce Leadership)

By

J. David Patterson

Executive Director, Defense Acquisition Performance Assessment



DoD Photo

J. David Patterson, Principal Deputy Under Secretary of Defense (Comptroller) and former Director, Defense Acquisition Performance Assessment (DAPA) project.

With the exception of actually fighting America's wars, few military subjects have received more attention in the literature and government studies than the systems and processes that the United States Government has employed over its history to acquire weapons and support equipment to ensure victory on the battlefield. Two factors stand out. First, laudatory comments in the literature regarding the Department of Defense's acquisition system and processes are scarce. Second, most if not all comments speak to a desire for having the most capable, best equipped military to ensure victory. No one seriously entertains an alternative to winning.

"[Pre-World War II] Army and Navy procurement officials, mired in bureaucracy, 'never did come to

terms successfully with the demands of fast moving technology,' wrote historian Thomas L. McNaugher, 'partly because they became too hidebound to change...lived always in a shadow of congressional investigation most often sparked by commercial firms that, having lost in the competitive bidding for a military contract, sought redress through their local member of Congress.' The protective bureaucrats' answer was to refine contracting to an art, demand elaborate specifications and endless testing, spread accountability around, and anything else to document their defense. 'War solved this problem by taking procurement outside of the Nation's traditional political norms,' McNaugher added."

The beginning of the last decade in the twentieth century saw the United States Government explore ways to take advantage of what many believed would be a budget boon, a "peace dividend" it was called, with the collapse of the Soviet Union. The 1990s were a period of ambiguity in terms of acquiring weapon systems, equipment and services absent a well defined enemy and an equally well defined military requirement. This situation has resulted in a reduced sense of urgency, a fuzzy sense of needed capability and a failure to appreciate what a military capability should cost

instead simply acquiescing to what it does or will cost.

Consequently, from the first kernel of an idea regarding a required capability to getting that capability in the hands of the warfighter, takes too long, costs too much and all too often results in disappointing battlefield performance. This is the perception held by lawmakers, the Government Accountability Office and the senior leadership in the Department of Defense. Critical commentary on the Department of Defense's acquisition systems, processes and policy is not new, as the words of McNaugher above reflect. And, as was the case prior to World War II, something must be done to ensure the necessary capability reaches the warfighter to guarantee victory and to regain the confidence of the Congress and the Department's leadership.

Defense Acquisition Performance Assessment in Context

The current environment for looking at how the Department of Defense acquires weapons, equipment and services is fertile ground for study. The Global War on Terror (GWOT) resulted in large deployments of troops to both Afghanistan first as well as Iraq and required large budgets and a national focus on providing the best war fighting capability to United States soldiers, airmen, marines and sailors. The defense outlays, not

See Survey, page 7

Survey of Workforce Leaders

From Survey, page 6

counting supplemental spending, have increased from \$294.5 billion in FY 2000 to what is estimated to be \$465.9 billion in FY 2005; roughly a 60 percent increase. Furthermore, the procurement and research and development outlays combined have grown during the same time from \$89.3 billion to \$145.8 billion about a 63 percent increase. Not surprising, the Department of Defense has received increased scrutiny from Congress, the Government Accountability Office (GAO) and others on how efficiently and effectively the Department has spent its budget in provisioning the warfighter.

To that end, the Deputy Secretary of Defense authorized the Defense Acquisition Performance Assessment Project to evaluate “every aspect” of the Department’s acquisition system and processes and come up with an action plan that addresses necessary changes. The Project was established under the Federal Advisory Commission Act with deliberations, findings and recommendations open to the public. Transparency and access to public comment is important to achieving a comprehensive understanding of the current state of the acquisition processes and system and the best thinking on where and how to improve.

During the last six months of 2005, this study was in progress to assess the Department of Defense acquisition system and processes called the Defense Acquisition Performance Assessment (DAPA) Project. The Project held public meetings and gathered data from 130 survey interviews, 170 hours of testimony from 107 acquisition expert witnesses, and an historical literature review of over 1500 historical

documents to arrive at over 1060 observations. The Panel did an aggregate analysis of the observations and found 42 issues areas that could be assessed to develop key acquisition performance improvements. Two characteristics of the DAPA Project results distinguish it from others, according to Secretary Rumsfeld – 128 others. First, the DAPA study was used to inform the recommendations of the recently published 2005 Quadrennial Defense Review or QDR; the first QDR to have been completed during wartime.

Second, the DAPA project is the only study directed by the Department of Defense that considered the opinions and points of view of organized labor from America’s defense industrial base. The views of fourteen local labor leaders interviewed for the study were very important in identifying key areas for improvement in the Department of Defense’s acquisition system and the recommended improvement solutions. The survey results and the participation of local labor leaders in the DAPA study is what will be discussed in this article.

During each interview, I asked each of the local union presidents if anyone from the Defense Department had ever asked their views or opinions on how the acquisition system was performing. To a person the answer was no. For this reason the DAPA Project panel believes that this study with the comments of those most knowledgeable about what actually goes on in the development and building of weapons systems at the “hands on” level is more valuable than previous studies in getting to practicable acquisition system improvement solutions.

The survey that each of the lo-

cal union leaders participated in was designed to draw out their points of view on the six key areas of the DoD acquisition system; workforce, organization, industry, requirements, budget and the acquisition processes. Of the nearly one hundred and thirty participants in the survey, the local union executives clearly favored significant improvement in the areas of budget stability and workforce competence. Those interviewed clearly understood the importance of having stable programs and that stability contributed directly to eliminating hiring turbulence and sustaining a predictable workforce. The impact on training, of programs that slow down or stop and speed up (instability), is very disruptive. Rework and repair rates go up and out of position work increases. All of which contributes to increasing costs and failure to meet schedule. The message coming from the local union executives was that their members want to do a good job and turn out first-rate systems. Lack of program stability hinders and prevents them in some cases from doing that.

The union executives were also very concerned regarding the amount of experience and competence that the government program managers had compared to the capability of the company program manager. There was general consensus that an emphasis on qualifications as well as certifications was needed.

Another aspect of the acquisition process that the union executives raised as often problematic was the apparent lack of an acquisition strategy. The fact that often clear well understood acquisition strategies are missing is not lost on the skilled industry workforce. Requirements creep causes significant disorder within the developmental engineering teams leading to schedule slips, cost

See Survey, page 14

Reversing Decline

Reversing the Decline of America's Industrial Base

Training the Next Generation of Skilled Craftsmen

The Winter 2004-2005 issue of the *Coalition Chronicle* featured an article by **David Goodreau** that discussed the decline of industrial skills training at the high school level and a lack of attention to in any way reverse this trend. He argues that with the current emphasis on preparing students for entrance to colleges and universities the standard curriculums no longer emphasize Industrial Arts programs. Woodshop, along with advanced classes in metallurgy, welding and machining have all but been eliminated from the public school system. It is little wonder that the de-emphasis of manual skill training mirrors the steady decline of American industrial base jobs.

The disappearance of manual skill training has gone more or less unnoticed because the high tech, computer-driven world places less value on the basic skills that drove the industrial economies of the 19th and 20th centuries. Iron and steel workers, along with welders and other skilled tradesmen, have steadily disappeared from the profile of the American workforce. This deficit in skilled craftsmen has eroded our industrial base and now threatens our national security. It is essential that we restore our industrial capability to produce our own machine tools, especially those involved in the production of defense systems. This

will not only require rebuilding industrial hardware, it will first require reversing the decline in the human capital of our industrial base: skilled craftsmen. It will mean rebuilding the skill base of machinists and other crafts that make up an industrial base.

One reason the disappearance of these skills is not more noticeable in our economy is because few industries utilize all of the different crafts and trades that once made America an in-

workforce after another, where does a shipyard find all of these skilled craftsmen? What follows is an account of what one company is doing to recruit and train craftsmen who are essential to U.S. national security.

One Company's Solution

The Commonwealth of Virginia is home to one of the nation's oldest shipbuilding companies, the Newport News Shipbuilding & Dry Dock Company,

which was established in 1886 and is now a part of Northrop Grumman Corporation. The first hull produced in this shipyard in 1891 was the tugboat *Dorothy*, which now sits in front of its corporate headquarters. At this shipyard, craftsmen built America's famous warships, including President Teddy Roosevelt's *Great White Fleet* and World War II historic aircraft carriers such as the *Yorktown* and *Hornet*. The



Northrop Grumman Newport News shipbuilding facility. *Newport News Photo*

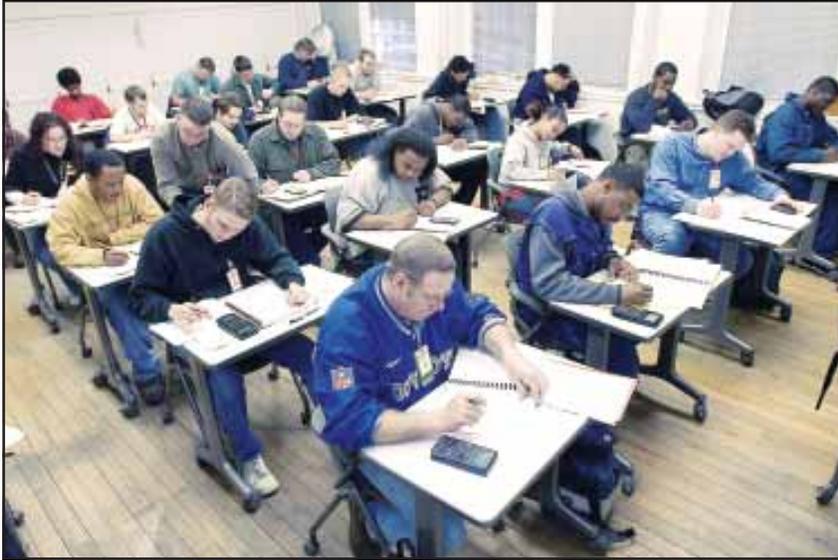
industrial giant. The one industry that employs all of these crafts is the shipbuilding industry. Virtually every craft needed to build a ship is a key component of an industrial base. Machinists, welders, pipe fitters, iron and steelworkers, sheet metal workers, electrical workers, millwrights, and ship fitters are all needed to build and assemble all of the millions of components to build America's warships, destroyers, aircraft carriers and submarines. In an era that has seen the disappearance of one industrial base

next big challenge in the early 60's was designing and constructing the world's first nuclear aircraft carrier, *Enterprise*. The *Enterprise* is still in the fleet today protecting our country.

More recently, Newport News is well into the construction of the nuclear aircraft carrier CVN 77. CVN 77 is the last of the ten *NIMITZ* Class carriers, which Newport News has built starting with the *Nimitz*. Currently, Newport News is constructing the newest, most advanced

See Decline, page 9

Reversing Decline



Newport News Photo



Newport News Photo

Newport News apprentices receive both theoretical and practical experience in the various aspects of a skilled trade, thereby acquiring skills and knowledge that will serve them well throughout their careers.

From Decline, page 8

submarine, the Virginia Class, which is designed for multi-mission operations and enhanced flexibility.

Recognizing that shipbuilding relies on a continuous solid base of skilled craftsmen, the company established its Apprentice School in 1919. Today, the school, which is located in the shipyard, is a model for recruiting and training craftsmen in a multitude of disciplines. More than 800 apprentices in 17 trades

are overseen by a staff of 17 academic and 64 craft instructors. **Bob Leber**, Director, Education & Workforce Development at Newport News once said, "We have The Apprentice School because no other school teaches shipbuilding from a craft view." The School's motto reflects its commitment to maintaining the highest standards for its apprentices: *Craftsmanship, Scholarship and Leadership*.

Admission requirements to the School ensure students are prepared for the rigorous college-level courses and skill training under the direction of master craftsmen. Students must have at least four units of high school algebra, geometry, physics or other technical courses and, once accepted, are required to successfully complete all of the courses in the World Class Shipbuilder Curriculum (WCSC) and applicable courses in the Trade Related Education Curriculum (TREC). The WCSC coursework includes technical mathematics, advanced mathematics including trigonometry and calculus, physical sciences, drafting, engineering and design, naval architecture, marine engineering, technical communications and business processes.

Newport News Welder Using the TIG (Tungsten-Inert-Gas) welding process.

Moving beyond the college classroom, the students are given the opportunity to work directly on ship production or in the services critical to the operation of the shipyard. Each craft corresponds to an essential area of shipbuilding in both production and the maintenance of all variety of heavy equipment in the yard, from cranes capable of lifting over nine hundred metric tons to delicate electronic machinery.

The Art of Welding

One of the most important trades in shipbuilding, as in the industrial base, is welding. Yet welding is one of the rapidly disappearing skills in the American industrial base. At Newport News welding is considered an art, whether in the joining of steel plates weighing thousands of pounds that make up the hull or in the miles of specialty steel pipe needed on nuclear aircraft carriers and submarines. The welding of steel plates is so precise that in a 1,100 foot hull of an aircraft carrier, the outer hull is almost as smooth as an airplane fuselage.

Similar precision and skill is re-

See Decline, page 10

Apprentice School Courses of Study

Dimension Control
Electricians
Maintenance Electricians
Heating and A/C Techs
Heavy Metal Fabricators
Machinists
Millwrights
Non-Destructive Testers
Outside Machinists
Painters/Insulators
Pipe Fitters
Maintenance Pipe Fitters
Riggers
Sheet Metal Workers
Ship Fitters
Welding
Welding Equipment Repair

Reversing Decline



Newport News/Cristis Osley

USS Ronald Reagan CVN 76 bow unit work.

From Decline, page 9

quired in the joining of steel pipe. Apprentice welders must master their craft in tightly confined spaces. They are taught to weld *around* corners by observing the unseen far side of the weld with a small hand-held mirror. The welded section of pipe displays a seamless pattern that master craftsman, **Rob Lane**, himself a graduate of The Apprentice School and now an instructor, calls a “work of art.” “The welder is an artist,” he says. Ultimately, this “work of art” will have to pass an x-ray inspection, because a pipe carrying nuclear fluid must not fail. The welder is so essential to the construction of a ship that Northrop Grumman Newport News **President Mike Petters** recently observed, “It’s easier to replace the shipyard president than a nuclear pipe welder. If I weren’t here, they could find someone else. If a nuclear pipe welder wasn’t here, it could take eight years to train someone.”

Machinists: Zero tolerance required

Machinists are another group of workers so necessary to a shipyard. At Newport News, machinists are trained to perform tasks

ranging from machining a 68-foot propeller shaft to manufacturing a delicate replacement part for a ship’s chronometer. Daily tasks assigned to apprentices include working with valves, fittings, steering gears, anchor windlasses and other precision components of all sizes. The intricate fitting of machined parts are held to the tolerance of a thousandth of an inch, whereas shafts, hinges and valves require a mating where

the tolerance is zero.

Electrical Apprentices

The Apprentice School also has a demanding program for the electrical apprentice. Electrical workers are responsible for the electronic nervous systems of a modern warship that operate everything from a nuclear reactor, lighting, heating, and cooling systems, sonar and radar to weapons systems. As **Dick Boutwell**, Manager, Training at Newport News said, “We are not your father’s shipyard anymore.” The apprentice now in the employee pipeline must not only replace the skills of a current aging workforce but must also be constantly upgraded with the new technical skills required for 21st century shipbuilding.

Ship Fitters: Carpenters working with steel

Students who enter the ship fitter trade are involved in all structural phases of hull construction and completion of all steelwork in the ship. A ship fitter’s assignments may vary from installing a simple foun-

See Decline, page 11



Newport News Apprentice checking diameter during machining process. Newport News Photo

Reversing Decline



Newport News Marine Designer. *Newport News Photo*

From Decline, page 10

dation for a small component to working with a team in erecting up to 800-ton assemblies in the ship. Thus, in addition to structural training, Newport News ship fitter apprentices receive training within a number of diverse yet related departments so as to become familiar with all phases of construction.

Optional Advanced Programs

Apprentices who do well in craft training and academic courses may be given the option of continuing their studies in one of three advanced optional programs. For example, in the Marine Design Program apprentices receive training in the principles of the design, planning and construction of modern ships. These higher-level



Newport News Photo

Apprentice School football players, "The Builders," tackle opposing player during home game.

courses are taught by the faculty of The Apprentice School and Thomas Nelson Community College. Upon successful completion of design program courses the apprentice will have completed the requirements for an Associate of Applied Science Degree in either Mechanical or Electrical Engineering Technology awarded by Thomas Nelson Community College with transferability to Old Dominion University. Other advanced programs include Production Planning and Advanced Shipyard Operations.

Extracurricular Activities Abound

Students in The Apprentice School enjoy a wide variety of extracurricular activities one would normally find at a college or university. The athletic department maintains full-time coaching staff of eight professionals and has fielded intercollegiate athletic teams since The Apprentice School began in 1919. Fully one-third of the students compete in a highly competitive intercollegiate athletic program. School teams earned 42 conference, state and national awards in the 2004-05 academic year. The school has fielded a football team every year since 1919, with the exception of one year during World War II.

Currently, six varsity teams compete against Division III-level schools in football, men's and women's basketball, golf, wrestling and baseball. In both 2001 and 2002, The Apprenticeship School women's basketball teams won the USCAA National Championship, as did the men's teams in 2002 and 2003.

The Apprentice School also is the home of the first collegiate student chapter of the United States Junior Chamber of Commerce (Jaycees), and the largest mid-Atlantic student chapter of the Society of Naval Architects and Marine Engineers

See Decline, page 12

Reversing Decline



Newport News Photo

2002 Apprentice School Div. III-level USCAA National Champions and Coaching Staff.

From Decline, page 11

(SNAME). It is seen as unique within this nonprofit technical/professional society. Other member schools are mostly research and engineering-based institutions such as MIT, Stanford, the U. S. Merchant Marine Academy, the U.S. Naval Academy and Virginia Tech.

These extracurricular activities provide a broader perspective to shipbuilding students and have a tremendous impact on leadership development and on opportunities to learn the subtleties of modern business practices.

Student Costs Covered

Being an apprentice is, in many ways, more like having a job than being in school. Upon entrance to the program, the apprentices are paid for all of their work including the time spent in academic classes with premium pay given for all overtime. Benefits include paid vacations, a pension plan, medical benefits, life insurance, business travel insurance, worker compensation, unemployment insurance and social security. Astonishingly, those who complete the program are not required to work in the shipyard and can elect instead to use this training and education to seek employment elsewhere. That said, however, graduates tend to stay in the shipyard.

A Well Kept Secret That Needs to be Told

D. W. “Danny” Hunley, a 1977 graduate of The Apprentice School, is now Sector Vice President of Trades, Education & Training. Hunley proudly states, “We offer our graduates of The Apprentice School good jobs with premium benefits as well as a career that protects our national security.” Compare that with the current state of affairs where each year thousands of college students trained in universities around the country in the fields of management, English, or history discover that their

4-year degree has led to no clear-cut career path with a huge college debt to pay. In comparison, The Apprentice School provides a career path and opportunities within the Newport News family. As a testament to the School’s growing importance in America’s industrial base, last year 1,984 applications were received for 274 apprentice openings.

The Apprentice School is the backbone of operations at Newport News Shipyard. In the 86 years since it was founded, The Apprentice School has graduated over 9,200 highly trained workers who have helped the shipyard to become the premier builder of aircraft carriers and the world’s most sophisticated nuclear submarines, once only marvels imagined by Jules Verne. More than 2,400 graduates serve in 240-plus leadership positions, including a vice president, directors, managers, engineers, designers and waterfront operators. Apprentices account for almost a quarter of management and professional personnel and almost one-half of production management personnel. This unique school serves in many

See Decline, page 14



Newport News Photo

Newport News academic instructor provides support to apprentices involved in the World Class Shipbuilder Curriculum (WCSC).

Restoring Industrial Base

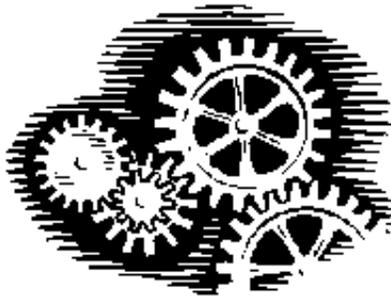
Restoring America's Industrial Base

Over the last half century, America has been transformed from a world industrial power to one that is now almost totally dependent on the machine tool industries of other nations. In 2003, six of every ten machines purchased in America were manufactured overseas. The largest exporters of machine tools now include Germany, Italy, Switzerland, Belgium, the UK, France, Spain, Taiwan, Japan, South Korea and Czechoslovakia. The decline of America's industrial base and our dependence on foreign machine tools now extends to the tools needed to manufacture our weapons systems. This has placed our national security in jeopardy. America cannot remain dependent upon other nations for providing the basic tooling for our defense and civilian infrastructure.

Only recently have American lawmakers acknowledged that the growth of heavy industries in other countries is filling the machine tool vacuum in the United States and could compromise the manufacture of American weapons systems. Faced with the denial by a foreign supplier of critical components for a weapons system during the Iraq War, in 2003 the House Armed Services Committee (HASC) focused on America's reliance on foreign machine tools needed for manufacturing American weapons systems. This led the Chairman of the HASC, **Rep. Duncan Hunter** (R-CA), to include a "Buy America" amendment to House bill H.R. 1588, the National Defense Authorization Act, stating: "*The Secretary of Defense shall require that, for any procurement of a major defense acquisition program – (1) the contractor for the procurement shall use only*

machine tools entirely produced within the United States to carry out the contract . . ."

The Buy America provision was passed by the U.S. House of Representatives. However, an unrealistic time for the implementation of the Act would have stopped the production of virtually every American weapons system. This led President Bush to threaten to veto the entire defense bill if the Buy America provision remained. The measure was withdrawn, but the debate had focused national attention on major defense infrastructure vulnerability.



The Members of Congress who drafted and supported the Buy America legislation were attempting to reinstate America's industrial independence. But even if the measure had passed, we would not have been able to reverse a fifty-year trend in one legislative cycle. Not only because we lacked the capacity to reproduce the needed machine tool hardware, but more importantly we did not have the tens of thousands of skilled machinists needed to rebuild the tools. Any attempt to rebuild the machine tool industry will first require recreating the base of skilled craftsmen we have lost. Here is the problem: how do we create a base of skilled craftsmen if there is no industry to employ or train them?

Serious attempts to recreate our industrial independence will require the creation of apprenticeship programs to rebuild our base of master craftsmen. Over the last forty years, there have been attempts by the U.S. government to address an educational deficit that threatened our national security. However, these attempts were focused on educating scientists and engineers. In 1958 when the Soviets launched Sputnik, America had to scramble to create a massive base of engineers and scientists needed for the exploration of space. The government accepted this challenge by creating the *National Defense Education Act of 1958 (NDEA)* to encourage and support what became a generation of engineers and scientists that pursued the Kennedy dream of putting a man on the Moon. That effort was begun because of the national security implications of losing America's dominance in science and technology.

Over time, some NDEA provisions were folded into other education statutes, and the act ceased to exist as free-standing law. In 2004, observing a decline in the number of American students enrolled in advanced degree programs in defense-related industries, **Dr. Ronald M. Sega** then-Director of Defense Research and Engineering (and now Undersecretary of the Air Force) authored "*The Case for a National Defense Education Act of 2006 (NDEA)*." Using the model of the NDEA legislation of 1958, Dr. Sega's paper proposed what became the "*Science, Mathematics, and Research for Transformation (SMART) Defense Scholarship Pilot Program – National Defense*" See *Industrial Base*, page 14

From Industrial Base, page 13

Education Act (NDEA)” enacted as a pilot program in the *Fiscal Year 2005 National Defense Authorization Act*. This Act provides scholarships and fellowships to U.S. citizen undergraduate and graduate students entering critical fields of science, mathematics, engineering, and languages in return for a commitment of national service after completion of their studies.

Both the 1958 and 2005 Acts focused on educating scientists and engineers, i.e. those who design the intricate computer programs and high-tech systems. But no matter how computerized and high-tech the world becomes, there will ALWAYS be a need for the skilled mechanics of the machine tool industry to build and maintain the giant machines, gears, valves, pipes, wires, cables and other industrial wherewithal that makes defense and space systems work. Currently, there is no national effort to regenerate that portion of our industrial base that manufactures those systems that the engineering community designs. In this light, it might be well for public policy makers to explore an NDEA model that could begin the process of training a new generation of craftsmen.

Commenting on the Senate’s rejection of a second Buy America initiative, in late December 2005, Chairman Hunter vowed to resubmit the proposal in 2006. He has asked the *Workforce Coalition* to help him in this endeavor. During the 2006 cycle, leaders in the *National Industrial Base Workforce Coalition* will work with the House and Senate Armed Services Committees to seek some meaningful program to create the new generation of craftsmen needed to restore our industrial independence and preserve our national security. ❖

From Survey, page 7

overruns and the risk that the original expected performance will be degraded. The labor leaders know that the intrusion of additional or new requirements in-to a program is an indicator of an inadequately structured, poorly disciplined or absent acquisition strategy.

Establishing a good industry–government relationship was at the top of many of the union executives’ recommendations. A clear, understandable and agreed-to set of expectations by the government and an equally clear, understandable and agreed-to capability to perform by the industry provider creates a relationship that has real opportunity for program success. To that end, the Deputy Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology and Logistics are holding more frequent and substantive meetings with industry chief executive officers. Additionally, and more important for the purpose of this article the Deputy Secretary of Defense is meeting with key aerospace and defense industry local union executives.

Understanding and taking into consideration the point of view of all stakeholders in the defense acquisition business will go a long way toward creating an acquisition system that is stable and captures and holds the confidence of the senior Department of Defense and Congressional leadership. Prominent among the stakeholders whose views are critical are the local labor leaders who represent the skilled workers who comprise America’s defense industrial base. After all, they are the ones who have crucial, hands-on knowledge about what is right and wrong with the acquisition system that they depend on for their paychecks. ❖

From Decline, page 12

ways like the military academies that teach competence, commitment, leadership, hard work, honesty, integrity and loyalty to the nation.

“In the future, the U.S. demand for manufacturing and shipbuilding excellence will continue to require a highly skilled workforce, especially if American citizens, public policy makers and the administration wish to keep our country’s expertise and heritage in shipbuilding,” stated **Dick Boutwell**, Manager of Training at Newport News. “A labor resource plan based upon reliable and predictable customer demands must also be in place and the pace of entry employee training must adjust to fit the pace of the retiring highly trained workers. Northrop Grumman Newport News has made this pipeline adjustment. One of the key elements of that adjustment was the recognition that skilled craftsmen and a sustainable workforce are critical to the continuous operation of this shipyard.” The Apprentice School is the key to meeting those goals.

Leaders in the *National Industrial Base Workforce Coalition* believe the Newport News Apprentice School is a model that could set a new paradigm for bridging the gap between America’s need for a healthy and responsive defense industrial base and the need to preserve our national security.

We believe it is critical that the United States never become dependant upon other countries for those skilled craftsmen who create and maintain both our defense and civilian infrastructure. What is needed is a national determination to address this serious deficit in craftsmanship. ❖

For more information on the Northrop Grumman Newport News Apprentice School, see their website www.apprenticeschool.com.

Space Exploration

Our Space Programs: A Perspective

by Charles D. Walker



Charles D. Walker

The National Aeronautics and Space Administration (NASA) was organized in 1958 as a response of President Eisenhower to the Soviet launch of Sputnik I, the first man-made satellite to orbit the Earth. I was ten years old at the time and clearly felt that I had to be part of the space age. NASA was the path to make that happen. I remember wanting to explore space as a personal goal but at the same time believing that space flight should benefit all Americans back here on Earth.

As the United States came together with the challenge of space, a new focus in Cold War policy began to take shape. Specifically, Americans became excited about beating the Soviets in high-tech civilian space programs. Now, science, technology, and math education were the new weapons in this “war,” and scientists, engineers and teachers were the new warriors. NASA was the agency commissioned to create a space agenda for the nation. NASA, American colleges and universities, and industry contractors were on the front

lines. In the early years, the battle cry was “Let’s be first in space.”

In 1961, a new President gave the nation another challenge: land a man on the Moon and return him safely to Earth within one decade. America understood that challenge and viewed the space program as a demonstration of the strengths of democracy and a capitalist economy.

In my high school years and as university student, I watched the race to the Moon. Twice I drove from Indiana to Florida to see with my own eyes the mighty Saturn V Moon rockets as they launched crews of astronauts to that bright world in our night sky.

Even before I graduated as an engineer with a degree in aerospace engineering, I knew I was too late for the Moon race. American astronauts had already beaten Soviet cosmonauts to the Moon, showing the world that the U.S. could conquer outer space. The space race transformed America by graduating the highest number ever of scientists with advanced degrees. The United States government had primed the economic pump, and the investment produced a flood of high-paying jobs. Entire new industries from computers to new materials stimulated still more jobs and more careers. With a brand new diploma in hand I hoped that there would be other exciting and worthwhile missions for this young engineer and “space cadet.”

But following the Moon landing, the space program was put on the back-burner as the war in southeast Asia ground on and domestic political issues here at home had everyone’s attention. NASA was left in limbo. The agency that had put a man on the Moon and was ready for

further space exploration had to lower its sights. NASA was directed to take the skills, capabilities, and technical knowledge used to get to the Moon and develop applications, thereby enabling science and creating spinoffs. NASA was also directed to focus on a reusable Earth-to-low orbit spaceship – the Space Shuttle – and at the same time foster science and technology by sending unmanned reconnaissance probes to other worlds. Another objective was for NASA to launch satellites to monitor the Earth’s environment. But all of these objectives were to be accomplished with a greatly reduced budget.

Up to this point, the programs for human space flight had developed progressive new capabilities for travel to and through outer space: through the 1960s the one-man Mercury capsule, then the two-man Gemini spacecraft, and out of those experiences the three-astronaut Apollo Moonship. These were all launched on one-use, expendable booster rockets many of which were modified military rockets. We were in a race!

After the Moon race was won, the emphasis for piloted activity in space was to be either the establishment of a human outpost in orbit around the Earth, a space station, or a reusable space booster. America took a tentative step toward a “space station” — the briefly occupied Skylab orbiting workshop. However, after Skylab burned up reentering the atmosphere, NASA was directed to develop the reusable Space Transportation System, aka the Space Shuttle.

There was an overlapping period of five years in the mid-70s when NASA performed a unique foreign policy mission. It orchestrated the

See Space, page 16

Space Exploration

From Space, page 15

successful Apollo-Soyuz project (ASTP). This one mission outreach to the Soviet Union amounted to the joining of piloted spacecraft from both countries in orbit around the Earth for three days. This project would bear fruit that would lie dormant for twenty years. But once ASTP was accomplished in 1975 it was back to slogging. NASA was viewed by some as just another federal agency. The U. S. would not see American astronauts fly to space for six years, until the first Space Shuttle launch in 1981.

As the Space Shuttle came into being, I found work in industry that would get me a seat onboard a Shuttle. I trained with NASA then flew as an industrial astronaut, the first working passenger in space. U.S. industry paid for my seat on the Shuttle. Three flights later this exciting opportunity came to a halt when the Space Shuttle *Challenger* and her crew, all colleagues of mine, were lost in January 1986.

Piloted space flight in the U.S. was halted for almost three years while the cause of the disaster was corrected. During that time, I shifted from being an engineer to becoming a marketer and came to Washington, D.C. with the objective of promoting the new Space Station – the one that President Reagan in 1984 had directed NASA to build by the mid 1990s.

By 1984, the Shuttle fleet had demonstrated itself in repeated flights, and the White House and Congress handed NASA a couple of significant directions. One was to end the development and use of most expendable launch vehicles for space missions. The reusable Shuttle was to be used for all but a handful of satellite launches, civilian and military. This direction was to be turned around soon after January 1986. But NASA was also given a new goal, the permanent Earth-orbiting Space Station. This

project was to be my focus, and much of NASA's, for almost two decades.

The Space Station project went through too many changes over the fifteen years it took to launch the first components. Without a single, clear purpose, it was a weakly supported effort. There was near continual congressional, White House, and third party reviews, assessments and design changes. But NASA and its Space Shuttle needed the objective of building and using what became the International Space Station (ISS). The U.S. invitation for foreign involvement in



NASA Photo

Charles D. Walker payload specialist working in space.

the project also made it harder to accomplish. However, this involvement has kept the ISS program alive, proving a vital lesson for future efforts.

Aimed at being a laboratory in space for many science and technology disciplines, the ISS today is half completed. Its complexity and size is daunting. Additionally, without a flying Shuttle (the fleet is not yet certified to return to full flight status following the tragic disintegration of *Columbia* in 2003) both the assembly and use of the space station have been stifled. This situation has put both a

continuing drain on agency resources and allowed critics to wound both the Shuttle and the ISS programs with a thousand cuts. American skill can do wonders in achieving immense challenges but, as with the Shuttle and the ISS, when the national will lacks, problems ensue.

NASA did not receive the kind of funding and support equal to the race to the Moon. Struggles between Congress and the White House practically ended the manned program. Over the last two decades, there were attempts to rekindle the Kennedy challenge to put a man on the Moon. On the 20th anniversary of Apollo's landing on the Moon, President George H. W. Bush announced a plan for renewed exploration to the Moon to be followed by human exploration to Mars. This effort was titled, *The Space Exploration Initiative* (SEI).

While many people were ecstatic, including me, others including most of the Congress were not. Even those charged with summarizing the cost for such an initiative for the Congress choked. Key management within NASA was convinced it was more than they could handle. They had a Shuttle program to run, and the design of the ISS had to be followed by an extended period of developmental operation. NASA's inflated cost estimate for the SEI killed it in Congress and with the public. The agency pressed on.

The Space Shuttle was flown on missions for science, technology and foreign policy objectives. Robotic missions came and went. From 1990 through 2002 NASA fought with diverse programmatic demands, an extended constituency of scientists, technologists, contractors, and public critics, a tight budget, and technical issues with the Shuttle, ISS, and other spacecraft. High technology dreams, like fully reusable launchers,

See Space, page 17

Space Exploration

From Space, page 16

burst for lack of practicality. The patina even came off the Space Shuttle and the still under construction ISS. NASA was just another federal agency that America loved when it succeeded, questioned its existence when it failed, but most of the time just ignored.

NASA worked through all this with a budget effectively constrained by the fiscal and political tensions of the period. The agency's funding was essentially flat, hovering around three-quarters of one percent of the federal budget each year. That has been true since the late 1970s. Calls to increase NASA's budget were killed as soundly as were the demands that it be reduced. NASA's budget had found its level of political tolerance. Then came February 2003.

The Space Shuttle orbiter *Columbia* was returning from a long flight of science research with an international crew. It disintegrated during atmospheric reentry because a fleeting incident during launch had fatally flawed the all-important heat shield on one wing. From that devastating failure came a chastised, recommitted NASA and contractor base. President George W. Bush saw the agency working through change and set it an energizing challenge. In January 2004 he announced a new American civilian space policy that focused NASA on exploring the solar system, the *Vision for Space Exploration (VSE)*. The policy also directs the retirement of the Space Shuttle and a limit to the U.S. use of the International Space Station. Change must happen for the future to unfold.

The agency, with guidance from the presidential *Moon, Mars and Beyond Commission*, set about modifying budget, programs, and its own organization in response. Two congressional sessions have debated the VSE. This past fall, the efforts of NASA and its new Administrator, **Dr.**

Mike Griffin, paid off with a go-forward authorization and appropriation. Mike has extensive government and industry experience, including previous executive positions at NASA. He is now facing the challenge of critics who say that the Space Shuttle and the International Space Station are drains on the American taxpayer and have not produced all that was envisioned of them when the programs were begun. There are critics who are finding fault with Griffin's prioritizing a multitude of programs with the resulting cancellation of some. The simple fact is that he is doing what others have not had the nerve to do. Perhaps his need is clearer. He now has a focus in which to manage the agency's resources. He knows his agency has problems, he knows it has objectives, and he knows he has only a little time to make positive change that will endure. This U.S. government agency that was established to defeat a superpower foe had faded into bureaucracy but is now trying to slough off the old baggage.

The Congress needs to help NASA focus upon the programs and priorities, allowing it to get rid of excess unneeded assets and transitioning appropriate ones to the private sector. Projects, facilities, and jobs that aren't part of the Vision, and just as importantly, aren't funded by Congress are excess baggage for an effective NASA. The VSE should be used to right-size the agency and also deepen private sector industrial capability.

The agency should be doing only those jobs best performed by the federal government and hand off the rest to the industrial sector. I see Mike Griffin doing this. He needs continuing White House and Congressional follow-through, this year and in future years.

Of significance here is support of the Space Shuttle until it is retired. It is a crew-carrying vehicle that becomes riskier as maintenance is

skimped. Shuttle hardware and personnel must be fully funded until it no longer flies.

The International Space Station is a unique outpost on the frontier of space. It is complex and expensive because it exists 24-7 in a place that is alien and unforgiving. Outer space provides America with insights, discoveries and new knowledge if we spend the time to challenge ourselves in its unique environments. A permanent laboratory, the ISS is the place to do that. The *Vision for Space Exploration* commits to completing the U.S. portion of the station and emplacing the systems of our international partners. Once that is accomplished, the VSE policy envisions the United States using the space station to further preparations for exploration of the Moon and Mars. I think there is much that should be done in that vein. The Congress should continue to enable NASA in planning for effective and beneficial American use of the ISS during assembly and after it is completed. The ISS is a tremendous lab and stimulus not only for science and technology but for education.

A captain of U.S. industry, Jeffrey R. Immelt, CEO & chairman of the Board of General Electric Co., had stark words for the Economic Club of Washington, a group of local executives, January 19 this year. "If you want good manufacturing jobs, one thing you could do is graduate more engineers," he said. "We had more sports exercise majors graduate than electrical engineering grads last year." Both the Democratic Party and the U.S. Chamber of Commerce announced policy initiatives late last year looking to increase the number of U.S. engineering graduates. They cited statistics that show the United States graduates about 70,000 engineers a year. India and China graduate five and eight times that number, respectively.

See Space, page 18

NASA Update

Crew Exploration Vehicle Update

NASA's current plan is to fly the space shuttles until 2010 with 18 flights to the space station and one to service the Hubble Space Telescope. In 2012, NASA plans to fly the Crew Exploration Vehicle (shuttle's replacement), which will be used by 2018 to fly astronauts to the Moon. The CEV consists of a capsule-shaped crew module similar to the Apollo command module but larger. The 12-ton CEV capsule will be mated to a service module that will provide power and propulsion during the journey to and from the Moon. Currently, there are two teams competing for the CEV contract: the Northrop Grumman-Boeing team and the Lockheed Martin team. NASA is delaying the selection of a prime contractor from March 2006 to July

2006 while they submit additional changes to the CEV requirements.

Contract with Russian Space Agency

The day after the shuttle *Discovery* was launched in July, NASA

grounded the shuttle fleet due to the foam insulation problem, which was similar to the cause of the fatal destruction of *Columbia*. In need of some way to deliver astronauts, cosmonauts and supplies to and from the space station, NASA negotiated with the Russian Space Agency for continued use of the Russian-built *Soyuz* and *Progress* spacecraft. However, the 2000 Iran Non-Proliferation Act prohibited NASA from buying the Soyuz and Progress vehicles. Therefore, NASA and the U.S. State Department asked Congress to amend that Act. In November, Congress enacted legislation giving NASA until 2011 to buy Russian hardware and services for the space station. ❖



NASA/John Frassanito and Associates

The Crew Exploration Vehicle and lunar lander return to the moon.

From Space, page 17

This is not an acceptable situation. America must mobilize all available assets to interest young people in pursuing science, technology, engineering and math (STEM) careers. NASA facilities and projects are among the most exciting and stimulating around. Research at the agency's facilities should be encouraged. NASA with Congressional support should expand work-study programs and offer pay enhancements in high demand disciplines. I don't believe there is a STEM discipline that NASA can't use or that wouldn't benefit from the challenges of the VSE. And there is another level of challenge that NASA should encourage further.

Two years ago a privately financed prize of \$10 million, the X-Prize, was awarded for the first non-government funded and developed piloted vehicle to fly to the edge of space. This followed on enormously successful prizes awarded for advances in aviation over the past century. NASA wants to and should get into this game, not seeking but offering prizes for significant innovation that will advance goals of the VSE. Congress should allow NASA to offer prizes in the billions of dollars for appropriately challenging new capabilities. While it is appropriate that NASA internalize skilled and innovative workforce and facilities in pursuit of the VSE the agency also must encourage high quality private sector jobs. Prize challenges will help

do that but traditional contracting must be continued to be farther extended to large and small businesses.

NASA is unique. Our space programs are key to an expansive American future in a 21st century where the space beyond Earth is a stage for international cooperation and competition. NASA holds the public's favor as an agent of excitement and discovery. People want it. Kids dream about it. We all benefit from it. ❖

Charlie Walker is an engineer and retired aerospace industry executive. He flew aboard the Space Shuttle as the first industrial astronaut.

Member Spotlight



Joseph P. Grabowski

Joseph P. Grabowski

*Professional Labor Organizations
can be partners with Corporate America*

The *National Industrial Base Workforce Coalition* is proud to honor **Joseph P. Grabowski**, Executive Director of the Association of Scientists and Professional Engineering Personnel (ASPEP) located in Cherry Hill, New Jersey.

Joe Grabowski joined the *National Industrial Base Workforce Coalition* in 2000 when he became the Executive Director of ASPEP, which represents over 2,600 engineers and scientists at Lockheed Martin Maritime Systems & Sensors (MS2), Moorestown, NJ; Lockheed Martin Advanced Technology Laboratories and Lockheed Martin Engineering Process Improvement Center, Cherry Hill, NJ; and L-3 Communication Systems-East located in Camden, NJ.

Joe has a long service record with the ASPEP organization beginning in 1984 when he became an active member. Over the years he has held a variety of positions within the organization such as Council Representative (1984-1990), Executive Board Member (1991-1998) in which time he held positions as the Moorestown Corporate Center Membership Chairperson, Member At Large, Membership Chairman, Griev-

ance Chairman and in 1991 to present day a Negotiating Committee Member. In 1999 Joe became Assistant Executive Director of ASPEP. He began his current position as Executive Director of ASPEP in 2000.

Raised in New Jersey, and prior to his work at ASPEP, Joe was employed by RCA, General Electric, Martin Marietta and Lockheed Martin as a real-time software engineer for 15 years. His work at those companies included responsibilities such as software requirements, design, development and test on numerous radar systems, including various aspects of the Aegis Weapon System for the U.S. Navy. Joe received a number of individual performance awards as well as team awards for his work on these programs.

Since 2000, Joe has been the Legislative Director – Private Sector for the Council of Engineers and Scientists Organizations (CESO). He has also been a leader within the *National Industrial Base Workforce Coalition*. In both of these positions, Joe has been involved in numerous labor/industrial campaigns over the last seven years, and has met with several U.S. Presidents and Vice Presidents, the Secretary of Defense, Secretaries of the Navy and Air Force, NASA Administrators and numerous Members of Congress. He has also attended both Democratic and Republican Conventions and the most recent 55th Presidential Inauguration in Washington DC.

In 1983, Joe received a Bachelor of Science Degree in Computer Science from Pennsylvania State University. He also completed the following programs at Cornell University's New York State School of Industrial and Labor Relations: Collective Bargaining Certificate Program, Contract Administration Certificate Program, and the Human Re-

sources Studies Certificate Program.

In addition to Joe's membership in the *National Industrial Base Workforce Coalition*, he is an Executive Committee Member – Legislative Director Private Sector for the Council of Engineers and Scientists Organizations (CESO). Joe is also a member of the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and the Labor and Employment Relations Association (LERA – formerly the Industrial Relations Research Association IRRA).

Joe's areas of interest include being an advocate and voice for engineers and scientists in the United States during his frequent visits to Washington, D.C. He is also very interested in labor law reform to ensure that American workers are provided an opportunity and a voice regarding conditions of employment with their employers. He is also an advocate for state and federal legislation, which promotes engineering and science in the academic and business communities. Additionally, Joe has a keen interest in changing the traditional attitudes of corporate and labor leaders, so that labor organizations can be better partners with Corporate America. Joe recently commented, "Professional labor organizations can be partners with Corporate America. Traditional corporate attitudes that consider labor organizations as adversaries or impediments to running a business must be replaced with a practice of cooperation and partnership. Only this type of attitude adjustment, by both corporate and labor leaders, will best serve America's needs."

Joe and his wife Joan have two children and make their home in Pine Hill, New Jersey. He and his family enjoy the beach and the ocean at the Jersey shore, where they have a summer home on Long Beach Island in Beach Haven, New Jersey. ❖

Welder

by Irene Carlisle

Slowly upon the ways the gray ships rise,
The hammers ring on forepeak, hold and keel.
Under our gloved hands and hooded eyes
The blue arc stitches up the patterned steel.

Over the hulls, between the clanging cranes,
We climb and kneel and seam the ships together,
Women are always sewing for their men,
It tides the heart through many a bitter weather.

The chattering rivets button up the shell,
The waiting bay is laced with windy foam,
The molten stitiches glow beneath my hand,
This is the ship on which he may come home.

This poem by Irene Carlisle was published in the Saturday Evening Post on February 3, 1945. Mrs. Carlisle was a welder at Moore Shipyard in Oakland, California, while her husband was in the Navy during the war. She is now living in El Cerrito, California.

National Industrial Base Workforce Coalition
1730 North Lynn Street, Suite 504
Arlington, Virginia 22209