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NADC Reflector

Volume 34 Number 5 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. May 1989

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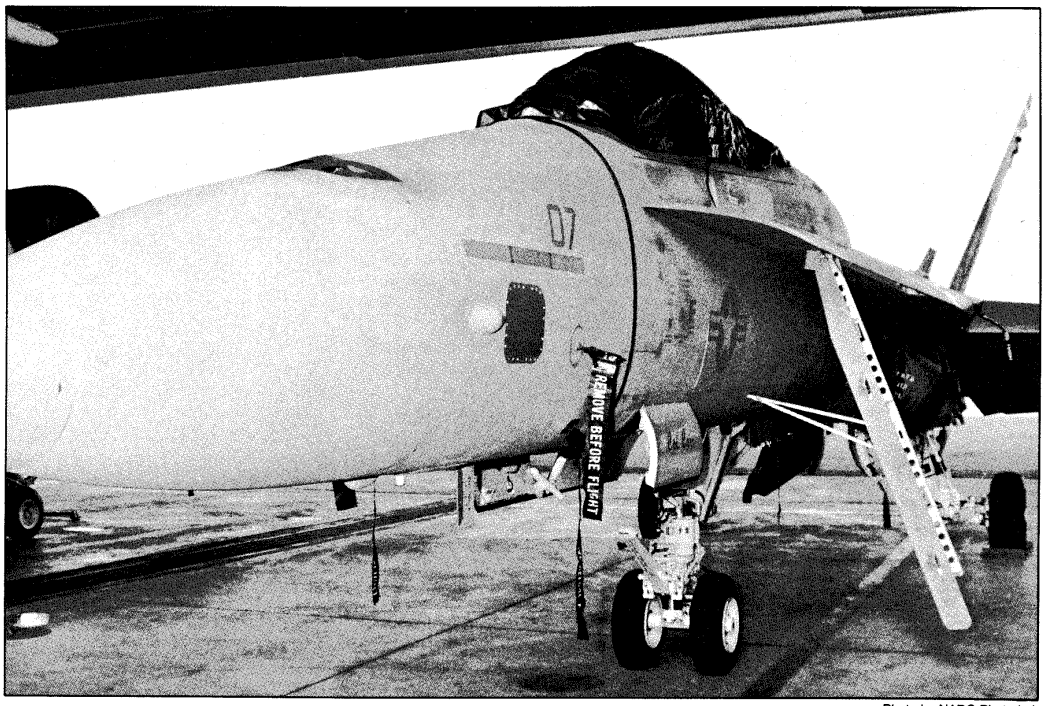
NADC alloy part installed on F/A-18

By Mary Ann Brett

Scientists and engineers at the Naval Air Development Center's Aerospace Materials Division have led the way in developing and expediting the use of aluminum-lithium (Al-Li) alloys (such as 2090 and 8090) on naval aircraft. Al-Li alloys have several property advantages over standard aluminum alloys including a 7-10% weight reduction as well as increased stiffness and fatigue resistance.

NADC's work has resulted in manufacture and installation of the first Al-Li part on aircraft in service. Once the AIR-45 access door on the F/A-18 aircraft was identified as a promising candidate part, access doors were manufactured from sheet 2090-T8E41. In early 1989, the Center installed the access covers on eight F/A-18 aircraft. Six of these aircraft will be carrier deployed, while the other two are land based.

The long term in-service evaluation of these access doors will provide information on alloy performance and maintenance requirements.



F/A-18 aircraft with aluminum — lithium access door installed before painting.

Photo by NADC Photo Lab

NADC pilots fly safely for fourteen years

By JO2 Michael Delledonne

Safety in flying is everything. A disaster is possible if safety is overlooked or not taken seriously. Everybody must do their job and do it well when it concerns aircraft. At NADC every precaution is taken and that proof has led to 14 years and more than 40,000 hours of accident free flying.

"I think the major reason for our success is the Maintenance Department," said LT John Hovland, NADC Aviation Safety Officer. "Our people usually come here with years of experience so inexperience is not a problem. Our pilots are highly qualified and some served as instructors. We have a good background at both ends."

A major accident is one involving more than $500,000, destruction of aircraft, or loss of life. The last serious accident at NADC occurred July 1974.

Flying safely is not an exact science as Hovland explained. "When we go up there's a chance something may go wrong. We do everything within our power toward preventing an accident. A little luck and a lot of good people are on our side."

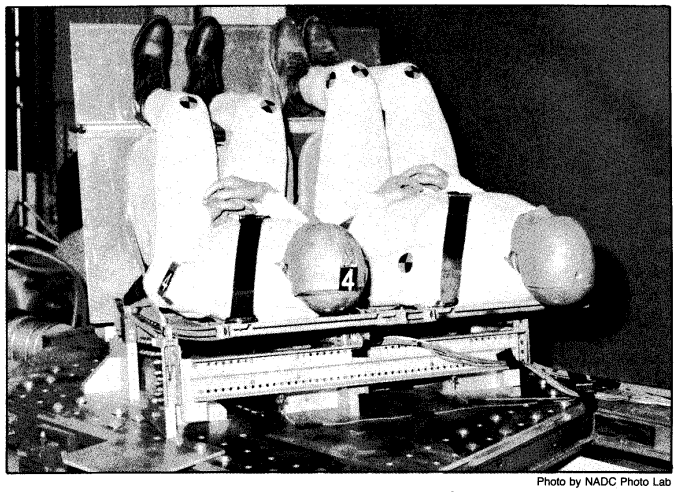


Photo by NADC Photo Lab

Anthropomorphic dummies are testing in the V-22 "Osprey" troop seats at the Center's Horizontal Accelerator.

Troop safety drives V-22 seat testing

By Mary Ann Brett

"The bottom line is troop safety," said Richard Hate about the V-22 "Osprey" troop seat testing and other NADC contributions to the tilt-rotor aircraft's design. Hate is the V-22 aircraft system engineer in the Tactical Air Systems Department. "Many injuries, even fatalities, are based on inadequate seat systems," Hate added.

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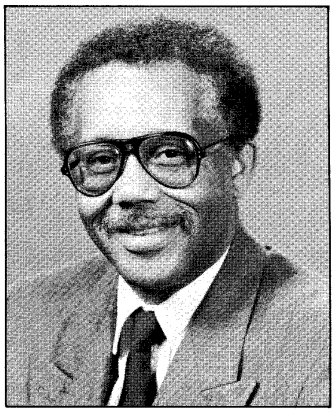
1989 Navy Relief Drive's on

The Navy Relief Society drive is well underway. The drive began May 4 and runs through June 20. A variety of services and sales will be held to help raise money for this organization which benefits Navy families. Keep your eyes open for upcoming events posted throughout the center.

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

The President's Memorial Day Message

On Memorial Day, the citizens of the United States pause to reflect upon the courage and selflessness of the men and women who have given their lives in defense of our Nation. These heroes paid the ultimate price to ensure that their fellow Americans could continue to live in "freedom's holy light." We owe them our eternal gratitude.

As we honor those Americans who have made the supreme sacrifice in service to our country, we also salute you, the current members of our Armed Forces. By protecting our Nation's hard-won liberty, you help to ensure that the sacrifices of those who have gone before us were not made in vain. Your sense of purpose, professionalism, personal courage, and loyalty are an inspiration to us all.

As Commander in Chief, I proudly salute the past and present members of our Armed Forces who have so faithfully defended freedom -- the only sure foundation for peace -- around the world. Thank you, God bless you, and God bless America.

George Bush
President

If the SOC Fits

By Robert Janes

The prohibition against gratuities is a key feature of the Navy's Standards of Conduct (SOC). This rule forbids Navy employees from accepting anything of value from a company that does or seeks to do business with DoD. One of the most frequent applications of the rule occurs with meals, and as most of us know, we are prohibited from accepting free meals from DoD contractors. Although it may be commonplace in the private sector for a company salesman to buy meals for employees of his customers, this practice is prohibited by DoD.

One of our senior scientists recently asked whether he might accept a meal, not from a defense contractor per se, but from an organization of defense contractors which was putting on an annual symposium at which the employee was scheduled to present a paper. He had been invited to a dinner, free of charge, in connection with this presentation, and asked whether his acceptance of the dinner would violate the SOC. It turned out that the acceptance of the meal fit within an exception to the gratuities prohibition, and was therefore acceptable. That exception provides that Naval personnel may accept lunch, dinner or refreshments that are part of a widely attended gathering of mutual interest to government and industry, so long as that gathering is sponsored or hosted by either an institution of higher learning or an industrial, technical, or professional association and, in the case of an association, the program has been approved by DoD in advance. In this case, since the program *had* been approved in advance, it was permissible for the NADC employee to accept a meal in conjunction with his attendance. I note that if this identical symposium had been put on by an individual contractor, the acceptance of a free meal would have been flatly prohibited.

TEMPORARY ASSIGNMENT

According to Otto Kessler, Head of the Warfare Systems Analysis Department, effective 21 May 1989, Bruno Cavallo will assume the duties of Head, Multi-Warfare and Advanced Concepts Division (Code 303). Cavallo will perform these duties until Robert Johnstone returns from DARPA in April 1990.

JUNE -- BACK INJURY PREVENTION MONTH

Eight out of ten Americans suffer from back problems, and more than 250,000 have back surgery each year. Many back injuries can be avoided by prevention, which means losing excess fat, maintaining physical fitness, lifting objects properly, using proper body mechanics and proper posture. It is always better and less painful to prevent an injury than to cure an existing one..

Commander Salutes

Cdr. Winston Scott (Code 20): For a motivational lecture "Soaring to the Heavens" given to PRIME, Inc. students.

Carl Schmiedekamp (Code 70): For participation as a member in the Software Technology for Adaptable, Reliable Systems (STARS) Source Selection Evaluation Board.

Dr. Gloria Chisum (Code 60): For time and assistance to the Naval Aviation Supply Office in responding to the Government Accounting Office on an intricate protest.

Laurie Bryner (Code 50): For a briefing on Night Vision Imaging Systems to the Society for Information Display.

Francis Chamberlain (Code 50): For assistance to the VP Special Projects Program in support of the Tactical Optical Surveillance System (TOSS).

James Brindle, Charles Halsted, John Parker III, Dr. James Sheehy (Code 60): For presentations to the Society for Information Display at the Night Vision Imaging Systems Program.

Sergeant Wilkie, Patrolman Theiss, Patrolman De Ginto, Patrolman Rangnow, Patrolman Trusty (Code 04): For outstanding efforts and professionalism while assisting the Warminster Township Police Department.

Ferdinand Reetz (Code 20): For an outstanding Night Vision Imaging Systems presentation to the Society for Information Display.

Robert Janes (Code 09): For time and effort as a member on the Center's Advisory Committee for the Protection of Human Subjects.

Harry Koper (Code 50): For a briefing to Reserve Unit 0193 at NAS Willow Grove.

Dr. James Whinnery:(Code 60): For invaluable training to the pilots of Marine Fighter Attack Squadron 251.

Harriet Feder, Davene Sheppard (Code 02), **Edward Calvello, Marianne De Cicco, Judith Scott, Lynne Edwards** (Code 03), **Ruth Pickering** (Code 10), **Jeanne Kita** (Code 30), **Carolyn Richards** (Code 50), **Margaret Russo** (Code 60), **Barbara Baum** (Code 70): For coordination and participation in NADC's Women's History Month celebration.

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Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

PROFILE:

Adversity overcome in Computer Dept.

By Bob Greenblatt

Jude Da Shiell probably knows more about overcoming adversity than most people. Born prematurely, he spent his first six months of life in an incubator (which burned his retinas and left him blind). Despite his handicap he was determined to make something of himself. After graduating from Delaware Valley College, with a BS degree in Business Administration, he is now only 13 credits from earning a BS degree in computer information systems management.

Jude's goal is to become a top-notch programmer, but up until now it hasn't been a piece of cake. Statistics show that 76% of blind people between the ages of 18-65 have never had a job (12% have only had a part-time job). For the remaining 12%, most full-time jobs start at an average of $13,400. To think that Jude is grateful for the opportunity to work at NADC is an understatement. "I appreciate the opportunity to work for the government. Things are just so limited in the private sector for blind people," Jude said.

Assigned to the Computer Department, Jude is currently working on a communications project that requires using COAS programs such as dBase III +. Most people would probably wonder how Jude can use a COAS workstation and write/debug programs if he's blind. To aid Jude, the Computer Department is providing a speech synthesizer board that plugs into an expansion slot in his PC. Jude can then plug in earphones to listen as his computer 'talks back to him.' Some initial problems occurred when Jude typed in the 'print screen' command and the computer generated voice started to talk non-stop. However, the software has now been adjusted to go at a pace that is understandable. Another problem came up when it was noticed that Jude was methodically punching out notes on a manual Braille notetaker. Technology once again came to the rescue and state-of-the-art braille notetaker is now on order. This will allow Jude to tap out notes on a stand-alone device that has a keyboard. He can then listen as his notes are spoken back to him. Another special help is a braille IBM compatible printer. With these special tools playing a major help-role Jude's spirit's have taken a huge turn upward.

Sometimes, when co-workers get the Monday blues or just get depressed about things, all they have to do is look in Jude's cubicle to understand things could be harder. Jude still has to struggle but he is determined to make something of himself and thank NADC for giving him a chance to prove that handicapped people can be productive employees.

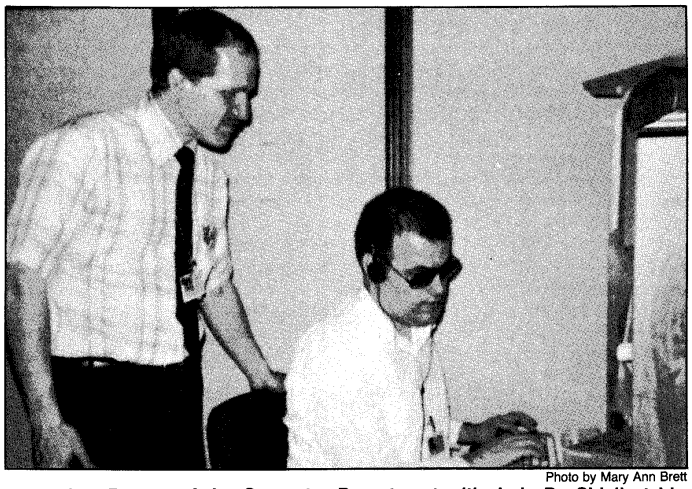

Photo by Mary Ann Brett

Al Kaniss, Deputy of the Computer Department with Jude Da Shiell at his workstation.

Tap the handicapped for hires

By Lois Savage

As Handicap Program Manager, I first spoke with Jude DaShiell while he was a college student looking to the future for a job. He was concerned that his inability to see would blind employers to his potential. We kept in touch until he was available for employment last fall. Although we were not in a hiring mode, DaShiell was eligible for a 700 hour temporary appointment under the Handicap Employment Program which doesn't require MTP dollars. He has since been converted to a full time permanent position. Fortunately for all concerned, the Computer Department saw beyond Jude's disability and now has another energetic capable employee on its staff.

The Handicap Employment program provides a quick and easy hiring alternative allowing us to a largely untapped pool of talented, capable candidates. These individuals might otherwise find employment difficult to obtain. Any qualified handicapped individual meeting the job requirements with or without Reasonable Accommodation, can be hired under this special hiring authority with certification from the State Office of Vocational Rehabilitation or Veteran's Administration. The appointment can be full or part time, permanent or temporary, or a 700 hour MTP free trial appointment to any General Schedule or Wage Grade position. To facilitate this hiring, the EEO Office maintains an Applicant Supply File of qualified individuals. We also maintain contact with local and state agencies to obtain additional applications when needed, along with aid in any needed accommodations. The accommodations can be accessibility changes to the work site, special equipment such as DaShiell speech synthesizer board, flexible work schedules, or restructuring of the job to better utilize an individual's abilities.

Approximately 200 of our employees have self-identified a handicap. Of that number, 28 have identified a targeted handicap. Targeted handicaps are those identified by the government as causing the most discrimination in obtaining employment and for which the alternative hiring programs can be used.

The Department of the Navy has increased its goal of employees with targeted disabilities from one to two percent by 1992. This is still way under the percentage of individuals with severe handicaps who are available for employment. So remember, supervisors and managers, use this excellent source of candidates when you are looking for new employees.

Dreams may come true

Singer ready for lift off for NASA

By JO2 Michael Delledonne

Becoming an astronaut is virtually every kid's dream. They imagine blasting off in the space shuttle and being part of a world that few will ever experience. That dream could become reality for LCDR Tim Singer.

"This is the third straight year the Astronaut Selection Board nominated me for mission specialist," said Singer. "The trend seems to be after the third or fourth time you move into the highest selection rate. I'm 41 so that makes me one of the oldest on the list. I trust that like wine I get better with age."

Singer's career has taken a few twists on his way to being selected for the space program. The oddest of which in his service in three of the four branches of the military. "The Army gave me the discipline to go to college where I earned two Master's degrees in Experimental and Clinical Psychology and a PH.D. from Yale," said Singer. "While in the Air Force medical department I became more and more aware of the engineering and biochemical issues associated with the aviation environment. I was actually moving towards a career change without knowing it."

While in Houston, with the Air Force, Singer heard of a special Navy program of about 35 people called Aerospace Experimental Psychologists. Seven months later, Singer transferred to the Navy. Since then he has served as an aircraft accident investigator and an aviation systems designer. Currently, he is the Superintendent of the Human Factors and Protective Systems Division.

The Astronaut program offers intense personal and professional interest to Singer. "It would be great to be involved with the space program," he said. "I can't imagine a more useful way to spend your life. To me, it enables a special combination of being a Navy officer, serving your country, and working in something that demands your very best while allowing you to work with the very best."

A space station is what interests Singer the most. As he talked about his chances of designing and building one, excitement and anticipation entered his speech. "Being an Astronaut is a super opportunity. I feel lucky I made the cut. There's a bunch of us that share the dream."

LCDR Timothy Singer

Realities of IR & IED

Research, development keeps NADC at the forefront of technology

By Dr. Asha Varma

The concept of IR/IED program originated from an 1962 report on Government Contracting for Research and Development (R&D) by the Bureau of Budget (currently the Office of Management and Budget) and submitted to the President. It was concluded that the substantial increase in contracting out for research had seriously impaired the Government's in-house ability to execute R&D work. The Department of Defense (DoD), in particular, had come dangerously close to permitting contractors to perform functions that were the responsibility of Government officials. This deterioration was due mainly to recruitment of the best Government research scientists, engineers and administrators by private industry, who could provide higher salaries, significant and challenging work and better working conditions.

To reverse this trend, it was recommended that laboratory directors be given discretionary funds and the authority to make decisions relating to research projects, personnel and other resources. Therefore, In-house Laboratory Independent Research Program was initiated Defense-wide in 1963.

The programmatic philosophy of the IR/IED program is; to sustain scientific and technological superiority for naval missions; to provide source of new concepts and technology options; to support theoretical and experimental research in Physical & Mathematical sciences, Life sciences, Engineering and Environmental sciences; to retain vigorous scientific manpower and laboratory base, and to apply research results in naval warfare and warfare support areas.

Originally managed by the Director of Navy Laboratories (DNL), this program was taken over by the Office of Chief of Naval Research (OCNR) during FY-87. Allocation of IR/IED funds to in-house Navy laboratories is now based on allocation algorithm per OCNR Memo 5000 SER 10P8/559 of 11 Feb. 88. Funding had a direct correlation with the number of full-time Scientists & Engineers (S&E) at the laboratories or centers.

In contrast to other Navy R&D programs, the IR/IED programs provide discretionary funding resources to the Technical Director (TD) of a participating laboratory/center to utilize in a manner that he considers as most supportive of his Center's mission areas. The OCNRINST 3910.3 places personal responsibility on the TD to encourage creative and productive scientific R&D in accomplishing assigned missions of the Navy. The accountability to OCNR is based upon an effective after-the-face review process (biennial on-site review) by ONR and ONT directors and their interaction with the laboratory technical director. OCNR has designated the following Navy Laboratories/Centers as recipients of IR/IED funding: David Taylor Research Center, Naval Air Development Center, Naval Civil Engineering Laboratory, Naval Coastal Systems Center, Naval Oceans Systems Center, Navy Personnel Research and Development Center, Naval Surface Warfare Center, Naval Training System Center, Naval Underwater Systems Center, Naval Weapons Center, Naval Medical Research and Development Command.

NADC's IR/IED program has been established since 1963. From time to time R&D accomplishments from this program have been highlighted in an Executive Summary, Accomplishment Report of NADC, ONR/ONT publications etc. For FY-89, NADC received $2,949K from ONR and $1,633K from ONT for IR/IED programs respectively.

During the months of March or April, calls for new IR/IED proposals submission for next FY is made Center-wide on behalf of the TD. Generally, certain guidelines and criteria for selection of proposals for

Continued on page 6

SECRETARIES' DAY — was remembered at NADC with the help of the Officers' Wives Club who arranged and made available bouquets of flowers for the convenience of Center employees. Proceeds go to various charities throughout the year.

TRIATHLETES, GET READY!

NADC HOLDS TRIATHLON

DATE: June 25, 1989 Sunday

TIME: 1100

Run—3 miles
Bike—13 miles
Swim—.25 miles

ENTRY FEE—$10/MIL & DEP
$15/NADC CIV EMP

Eligible Participants:
Active Duty Military & Dependents age 16 and above
Retired Military & Dependents age 16 and above
NADC Civilian Employees

Proceeds to benefit Military Morale, Welfare and Recreation Association at NADC.
($10.00 includes T-shirt and party!)

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6. STRENGTHENING AMERICA — Buying Bonds is patriotic. It helps you while you help your Country. Bonds serve to underwrite Federal monetary needs and help fight inflation by supplying dollars that might otherwise be borrowed at much higher interest rates.

7. COLLEGE COSTS MADE EASIER — Accumulating U.S. Savings Bonds in your child's name can, if certain conditions are followed, render them totally TAX FREE when they are cashed in for college use.

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Or, you can produce income from your savings by exchanging accumulated Series EE Savings Bonds for Series HH Bonds, which pay interest as it's earned by semiannual Treasury checks. You need not pay tax on the accumulated interest on the bonds you exchange until the HH Bonds are cashed or reach final maturity. This way you keep your principal intact, have a steady income for at least 10 years, and, when the HH Bonds are cashed, the tax will be at your post-retirement rate.

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SUMMARY OF RATES TO DATE:

NOVEMBER 1, 1988 - APRIL 30, 1989	7.35%
MAY 1, 1988 - OCTOBER 31, 1988	6.90%
NOVEMBER 1, 1987 - APRIL 30, 1988	7.17%
MAY 1, 1987 - OCTOBER 31, 1987	5.84%
NOVEMBER 1, 1986 - APRIL 30, 1987	6.06%
MAY 1, 1986 - OCTOBER 31, 1986	7.02%
NOVEMBER 1, 1985 - APRIL 30, 1986	8.36%
MAY 1, 1985 - OCTOBER 31, 1985	9.49%
NOVEMBER 1, 1984 - APRIL 30, 1985	10.94%
MAY 1, 1984 - OCTOBER 31, 1984	9.95%
NOVEMBER 1, 1983 - APRIL 30, 1984	9.38%
MAY 1, 1983 - OCTOBER 31, 1983	8.64%
NOVEMBER 1, 1982 - APRIL 30, 1983	11.09%
AVERAGE RATE	8.32%

What they do; Who they are

By JO2 Michael Delledonne

The Navy enlisted rating Aviation Maintenance Administrationman (AZ) is a log and records manager for aircraft. That's what AZ2 Scott Rice does and he likes it. "It's challenging here because of the five different types of aircraft," said Rice."At other duty stations, I would have maybe two."

Rice, 24, originally from Canton, Pa., described the AZ rating. "We're responsible for routine office administration and maintenance of all aircraft log books. We also keep track of records for the Center's P-3, two H53 helicopters, A-7, T-2, and F-14 specially configured research and development aircraft."

After high school, Rice attended Williamsport Area Community College where he studied aviation maintenance. "I wanted to pick a rating that was close to what I had studied in college," said Rice.

In January '89, Rice reported to NADC and has noticed it's the people at the Center that make the big difference. "It's small, but individuals here really care about each other. You're not just another number here. People will bend over backwards to help you. That's the best part."

AZ2 Scott Rice

WELL DONE! *— In recognition of outstanding efforts of its personnel in the Air Vehicle and Crew Systems Technology Department which significantly contributed to the enhancement of mission safety and combat performance for the fighter aircrews of the New Jersey Air National Guard. The HIGH-G Centrifuge training provided by NADC demonstrated their commitment to fostering the total force policy in the Defense of this nation.*

First row kneeling: Elvin Santiago and William Grimes; Second row: Duane Murray, Melinda Gonzalez, Tim Carrega, Brian Brown, Joseph Kailis, Steve Holler, and David Edwards; Third row: Luke Maxwell and Frank Mitchell.

Data link capability demonstrated

The Right Combination of micro processors, antennas, communications equipment allows NADC a unique capability explains Michael Mocenter (center) of the Mission Avionics Technology Department (MATD). He and Thomas Castoldi (right) Head of MATD explain to Center Commander CAPT. Curtis Winters how NADC's unique capability to data link, a still image over the Fleet satellite seven, 23,000 miles away, a hi-resolution, black and white image in 17 seconds.

Photo by NADC Photo Lab

Center Commander CAPT Curtis Winters, Michael Mocenter and Thomas Castaldi view a still image transmission.

And the Nominees Are . . .

There are nearly one hundred honorary awards available throughout each year for which NADC's outstanding employees might qualify. However, unless deserving individuals are nominated, these awards will surely elude us. The nominations themselves are a way to recognize dedicated and diligent employees. Those awards accepting nominations through May 1, 1989 are:

- SES Performance Award (Cash)
- GEICO Award (Honorary)
- Federal Executive Board Hispanic Employment

For specific information about these are any awards, contact Bettie Simpson, Code 031, extension 3079.

Commander Salutes

Continued from page 2

John Scott, Diane Heal (Code 09): For participation and assistance during the Third Annual Delaware Valley Regional Procurement Fair.

Calvin Dresser (Code 20): For outstanding support in the investigation of combat survivability enhancement for the F-14 Tomcat.

David Bailey, Bruno Cavallo, Edward Kenkelen, John Strobel, Arleen Anderer (Code 30): For technical assistance and participation in briefings to the Operational Research and Analysis Establishment, Ottawa, Ontario.

Margaret Tomlinson (Code 02): For outstanding financial and programmatic support to the A-12 program.

Stanley Dunn (Code 10): For significant contributions in support of Japan Maritime Self Defense Force P-3C program.

James Kingham, John Metzer (Code 20): For untiring support to the Medium Range Unmanned Air Vehicle evaluations of the acquisition proposals.

Margaret Vigelis (Code 04): For outstanding efforts and professional attitude during the recent Deborah Hospital Foundation Walk-Jog-Bike-athon.

Norbert Armstrong (Code 50): For assistance in enhancing the capabilty of the F-14 TARPS.

Stimulate the R & D atmosphere

By Dr. Asha Varma

The Center's IR/IED program provides an opportunity for scientists and engineers to conduct self-initiated research and development (R&D) to capitalize immediately on ideas generated in-house to solve Navy and Marine Corps problems; a stimulating R&D atmosphere conducive to the formulation of new concepts and ideas; research that will establish scientific knowledge to be used in solving both immediate and long term naval problems; opportunities for preliminary investigation on the more speculative solutions to problems that are unsuited for study under specific task; and maintenance and advancement of the Center's high tech base skill levels and provides visibility among peers and other Navy scientific community.

In June 1988, OCNR sponsored the Navy's first IR/IED Symposium at the Applied Physics Laboratory, Johns Hopkins University, Md. At this symposium, NADC presented six oral, 5 poster and two transition posters. The participants in this symposium were Dr. V. Agarwala, Dr. L. Buckley, Mr. L. Gause, Mr. D. Keyser, Dr. W. Scott, Dr. J. Sheehy from CODE 60, Mr. V. Contarino, Mr. R. Dechico, Mr. R. Simms, Mr. A. Passamante from Code 50 and Mr. C. Heithecker from Code 70. The two transition posters were placed on display at the Pentagon after the symposium. Proceedings of this symposium were published in three volumes.

The highlight of the first Navy's IR/IED Symposium was the award presented by ONR/ONT for the best IR/IED paper. Mr. R. Dechico, Code 50 received the award for presenting a best IED paper. The monetary award was five thousand dollars to an individual and fifty thousand dollars to the laboratory. Dr. V. Agarwala was the runner-up for best IR award.

This year NADC particpants in the Navy IR/IED symposium are Dr. E. Lee (best IR award winner for FY-88 at NADC), Dr. J. Sheehy, R. Sands, A. Scotese (best IED award winner of FY-88 at NADC) of the Air Vehicle and Crew Systems Technology Department and Dr. J. Davis and Dr. W. Rosen of the Mission Avionics Technology Department. Two papers by Lee and Scotese have been nominated by the Technical Director to the Office of Naval Research/Office of Naval Technology (ONR/ONT) for Symposium award consideration.

The successful IR/IED program at NADC can still be improved to keep NADC at the top and forefront of the technology. It is requested each S&E take an active role in submitting quality proposals and participating in the review process. Please write to the Technology Base Manager's Office. Code 01B, and make comments and suggestions for improving the present system. S&Es are also welcome to pose questions and comments pertaining to the center's IR/IED program to Dr. Varma at x3975.

R & D: forefront of Naval technology

Continued from page 4

funding purposes is provided to S&Es. The S&Es can submit their ideas in the proposal format to their departments as well as to the Technology Base Manager's office for consideration. Departments may provide their guidelines for selection and prioritization of the proposals. Once the proposals are received in the Technology Base Office, these are reviewed by Committees formed of S&Es, who are experts in various technologies and faculty members of local Universities. An oral presentation is required from each principal investigator before the committee. Results are tabulated and list is presented to the TD for the final selection. He has the option to approve or reprioritize the list.

Once the proposals are selected for funding, each candidate is informed through a formal letter via chain of command. DD 1498 forms are submitted for Center planning and sent to Defense Technical Information Center (DTIC). These forms are also supplied to OCNR by 15 January to indicate past and current program progress, identify significant achievements and assist in the after-the-fact assessment. The Technology Base Office funded 24 IR and 16 IED projects including on-going projects from FY-88.

Reviews of the selected projects are a validation of the IR/IED program on an after-the-fact basis, confirming program conduct with respect to OCNR guidelines, identifying promising technology areas and providing a measure of peer review to the investigators. At NADC, the Technology Base Office conducts mid-year and annual review of each project for merit, relevancy and progress. To encourage high quality R&D, selection of best IR and IED project is made and awards are given by the TD for accomplishments to the principal investigators.

OCNR performs on-site biennial review of IR/IED programs. NADC had its first review in May 1988 and next one is scheduled for FY-90. OCNR selects projects for detail presentation and critical review. Progress of IR/IED program is also submitted in the form of an annual report which is due to OCNR by the end of April. This annual report highlights some projects in the form of a paper and includes accomplishments, paper presentations, technical reports, patents, awards etc. of each investigator related with the IR/IED projects.

Security Reminder

CLASSIFIED MATERIAL— Classified material must be handed to an individual personally, and the individual must be made aware that they are receiving classified material. NEVER leave classified material on an unattended desk. New employees with a clearance and a need to know must be indoctrinated in the proper handling and safeguarding of classified material.

Be ethical about water conservation

By Michael Blank, P.E.

During the past two decades it has been clearly demonstrated that a water conservation ethic is vital both at work and at home. The demand for water since the 1960's has increased dramatically because industry and population has grown tremendously.

Oceans cover 70 percent of the earth's surface and contains 97 percent of all the water. But this water is too salty for drinking, farming or manufacturing. Only 3 percent of the world's water is fresh and unsalty. There is a strong correlation between water and civilization; the more advanced countries use more water for productivity and personal use.

According to the World Book Encyclopedia, the United States has more homes with kitchen faucets, flush toilets, air conditioners, garbage disposals, and automatic washing machines than any other country. For many people in Asia and Africa, water is a luxury. The people must haul water up by hand from the village well, or carry it in jars from pools and rivers far from their homes. American people do not have such problems. Every American uses an average of 70 gallons (260 liters) of water a day at home. It takes about 3 gallons (11 liters) of water to flush a toilet; 30 to 40 gallons (110 to 150 liters) to take a bath (and each minute under a shower takes at least 5 gallons (19 liters); up to 10 gallons (38 liters) of water to wash the dishes; and, up to 30 gallons (110 liters) to run an automatic washing machine.

A water meter accurately measures the amount of water that flows through a pipe. It assures you will be billed only for the water actually entering your plumbing system. It's also a reliable detector of water leaks in your pipes or plumbing fixtures. A faulty toilet, for example, one of the most common sources of household leakage, can silently waste hundreds of gallons of water a day. The Water Company owns and is responsible for maintaining your water meter and making sure that it functions properly. Normally, conventional meters are read by the water department during their regular quarterly visits. If a meter reader cannot gain access to your home, you will be left a Call-A-Read card with instructions for obtaining the meter reading and calling it into the water company's office. If the water company cannot read your meter they estimate the amount of water you have used: This could be higher or lower than actual consumption, resulting in a surprise when you are finally billed using an actual meter reading.

The water meter is also a safeguard against undetected leaks. Leaks can be costly, and you can easily check for these yourself. First, turn off all of your faucets and other water-using devices like automatic ice makers and humidifiers. Write down the reading from the 10-gallon red sweep indicator or small circular dial on your water meter. If the reading has not changed after an hour has passed, overnight is even better, you know that your plumbing system is leak free. If there is a change in the reading, look for the leak and either fix it yourself or call a plumber. In the long run, the cost of a modest repair is far less than the cost of higher water and sewer bills.

Checking for leaks on a regular basis is a good idea and water can be conserved only if people are interested in learning about existing and future water problems.

ENERGY TRIVIA

Q. If the sun died out and it were possible to use all of the earth's resources of coal, oil, and other fuels to heat the earth, how long could the earth be kept as warm as it is now?

A. Three days.

Troop safety drives seat tests

Continued from page 1

Involved with various stages of V-22 preliminary design since 1981, the Center has recently performed crashworthy, dynamic testing of the troop seats on the Center's own horizontal accelerator facility. The test plan used, which requires measurement of accelerations and loads on dummies as well as on the seats, was written by Life Support Engineering Division personnel in the Air Vehicle and Crew Systems Technology Department.

The crashworthy or load-limiting seats are designed to enhance troop safety by absorbing the impact energy during a mishap. By using a mechanism similar to a shock absorber, the load transmitted to the occupant is limited to a survivable level and the seat is prevented from breaking free.

According to Leon Domzalski, instrumental in developing the test plan's dynamic criteria, "qualification tests have been completed and the results are being evaluated."

"NADC is evaluating V-22 crashworthiness from a systems perspective," stated Hate, "considering not only the crew and troop seats, but also the landing gear, fuselage, and cargo restraints as well."

Chamber sees the chamber

John Cunningham, of the Microwave Technology Techniques Branch, explains the function of the Anechoic Chamber to members of the Greater Warminster Chamber of Commerce. The visitors also enjoyed lunch at the Crews Rest and viewed the "up-side down" airplane at the radar range.

Technical Highlights

SURVEILLANCE IRST PROGRAM

The Video Display and Analysis System (VDAS) being developed by the Remote Sensing Branch along with its support contractor — AMPAC — was completed and delivered to Texas Instruments (TI). This system will be used to support the performance and acceptance testing of the High Altitude Remote Piloted Surveillance System (HARPSS) IRST being developed by TI. VDAS will also be used to control the IRST during P-3 flight testing in addition to supporting post flight analysis as part of the Surveillance IRST Advanced Technology Demonstration. The HARPSS IRST and the VDAS system are being developed under the Airborne Surveillance Block Program managed by NAVAIRDEVCEN for the Office of Naval Technology.

DEMONSTRATION SYSTEM DELIVERED

Communication Technology Division personnel completed a demonstration system to test the jam-immunity of the uplink to ASW aircraft from sonobuoys. The demonstration system was delivered to North Island Naval Air Station for use in fleet exercises.

Artist's rendition in oil displayed in lobby

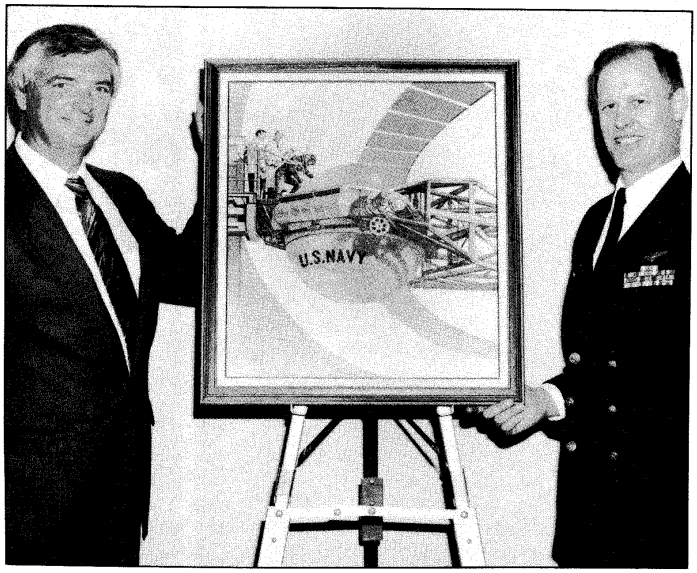

Photo by NADC Photo Lab

William F. Morando, President and Publisher, Romaine Pierson Publishers, Inc. of Long Island, presents an original oil painting of the Centrifuge to Center Commander, CAPT Curtis J. Winters. Painted by renowned artist, Stevan Dohanos, the work was used as the cover photo for the March 1966 issue of MEDICAL TIMES magazine. It is being prominently displayed in the main lobby.

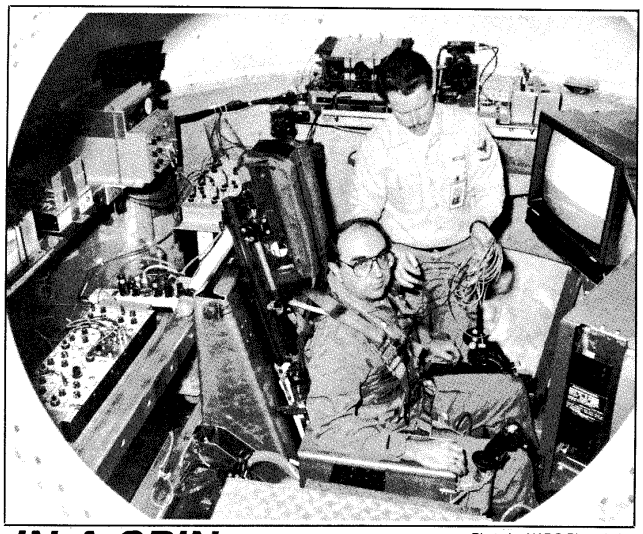

Photo by NADC Photo Lab

***IN A SPIN* — Dr. Donald P. McErlean, Head of the Air Vehicle and Crew Systems Technology Department got first hand experience of a spin in the Center's Dynamic Flight Simulator. Undergoing pre- and post-flight medical screening, McErlean took the standard familiarization rides including gradual and rapid onset up to 3g's.**

Planned your vacation yet?

To help with all of your personal travel arrangements, call SATO Travel, ext. 2729, Mon. thru Fri., 8 AM to 4 PM.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Hole in one at 6th

By Pete Brown

Forty-six WFR golfers overcame showers and mud during May's outing at Middletown Country Club in Langhorne. The highlight of the tournament was a Hole-in-One by Steve Kochanski on the 6th hole! Low net honors went to B. Hearn (60), B. Hines (62), K. Miller (63), B. Wiggs (63) and D. Stadler (64). Low gross honors went to S. Cloack (77), Scott Perry (78), R. Miller (79) and B. Harvey (79). Twenty-six better ball teams fought it out with S. Perry and S. Cloak taking 1st with a net 58. B. Hines and B. Zarkowski tied with R. Miller and K. Miller at 59. Longest drive went to R. Miller at 273 yards. Closest-to-the Pin Awards went to B. Hines on #3 (1 Foot); S. Kochanski on #6, Hole-in-One; S. Clark on #8 (16 Feet); G Werczynski on #10 (17 inches); and C. Tierney on #14 (25 Feet). Don't forget to read the golf bulletin board in the open bay area for golf league standings and general golf information!

"Boomer" boasts longest drive

By Pete Brown

Under sunny skies and cool spring temperatures, 48 W+R golfers battled the Center Square Golf Course to its knees on April 11th.

Individual net honors were captured by J. Koroncai with a 65. Close behind at 67 was A. Madera, J. Markow, along with B. Hearn and K. Stingel were all tied for 3rd low net with 70's. First low gross went to B. Harvey with a 78, second low gross to S. Perry (79) and third low gross to R. Miller (81).

In two man better-ball competition, the Koroncai's won honors with a net 59, followed by R. Miller and B. Zarkowski (63), P. Finnegan and J. Markow (64), and S. Perry and M. Mirabella (64).

Closest to the pin awards went to C. Swatchick on the 3rd hole (21 feet), H. Frost on number 7 (9 feet), A. Madera on the 14th (10 feet) and B. "Hole-In-One" McAvoy, 11 feet on the eighteenth hole.

Longest drive went to "Boomer" Perry again with a 240 yarder — let's go folks and beat this guy!!!

Mixed League Bowling News

By Tom Reiter

May 3rd saw our knockdown night finish with some interesting results. Knockdowns occur on the last regular scheduled nights of each half. The second place team bowls the first place team, giving them a chance to go head to head and move up in the standings. In the A Division, the Red Winos (**Tom Reiter 224, Mike Dent 211, Elaine Granieri 209**) held off the late season charge by the Goofers (**Leo Markushewski 222, Lorraine Reidinger 205**) to win the second half. Added to their first half title, the Red Winos are the undisputed A Division champs. In the B Division, the first half champion Gutter Dusters, without their captain and high average bowler **Wes Gleason**, needed a sweep after slipping into second place. They only went out and beat the Falcons 4-0 with a two pin victory in the last game to also win both halves despite a **Steve Jerdan 209/512.** This is the first time in the history of our league that the same teams won both halves in both divisions. While first place was being decided, there was some excitement down the other end of the alley when **Jim Campana** rolled a 276 game. Jim started out with nine strikes, tried his best to stay calm in the tenth frame, and ended with a league high 276 game on our last night.

The battle of the titans took place on Wednesday night, May 10th. The opening game of the three game, championship series was a close two pin (987-985) Red Wing victory, but from there it was all Gutter Dusters. Led by **Wes Gleason's 211, 231/619** series the Dusters crushed with two straight 1000 plus games to win total pins 3002 -2819. Congratulations to all the champs. Bowling is a team sport and **Wes** had great support from **Mary Vaughn, Bruce Vaughn, Ann Fowler, Jack Kinskey, Pam Kinskey, Dom Zaccaria, Chris Zaccaria, Aaron Davidson, Kathi Call, Bill Flannery.** The runner-up Red Winos also deserve mention for their season — **Tom Reiter, Ernie Wykes, Mike Dent, Bob Andrews, Miriam Lentz, Elaine Granieri, Claire Bayer** and **Debbie Erney.**

As we went to press, all of our league statistics have not been compiled. Next month's edition will salute all of our high individual accomplishments. Thanks to all league bowlers for a fun year, see you at the banquet.

The men's league wanted me to congratulate the Grandfallon for capturing their championship with high games from **Wes Gleason 233/203,** and **Jim Michell 220.** The runner-up Phantoms were led by **Joe Leonard 210/204.**

Old, new, recycled play

By Jack Eyth

The NADC Intramural Softball League has shrunk slightly, survived a major organizational change within its Board of Directors, and actually seems to be thriving as a result of new leadership both on and off the field. This year's Board of Directors is made up of Steve Spadafora, John Bowes, Jack Eyth, Joel Wexler, Bob Bello, Mark Lilly and John Metzer. The league is comprised of 15 teams, down three teams from 1988. Gone are the Druids, CSC, Nightriders, and analytic Animals; new this year are the Life Supporters, managed by Dan Schmidt; and two teams, the Guzzlers, and the perennial powerhouse Granfalloon, have undergone significant personnel changes. The Granfalloon, winners of 7 of the last 10 league championships, have lost many of their top players and may or may not be a factor in this year's playoffs. The Misfits, Eighth Inning, and Renegades, are all basically unchanged from last year and are expected to finish in the top five. The Bandits, last year's number-one regular season team, have lost slugger Rick Sames but are still a dangerous team and should contend. The biggest surprise of the new season are the currently undefeated Intimidators. Although their star pitcher Ken Bebbe was rumored to be out of action with an injured elbow, he has apparently risen from the ashes to lead his team to the top of the standings. Other teams off to unexpected good starts are the Rebels and the Herassers. if you believe the pre-season hype of the revived (or is it recycled) Guzzlers, they should fight it out with the Bearcats to fill the final playoff spots. the Dynatigers, Orange Crush, Phantoms and Life Supporters will all have a long road to hoe this season. As of 5 May 89, the league standings were:

Intimidators	4-0
8th Inning	3-0
Rebels	3.0
Herassers	2-1
Misfits	2-1
Bandits	2-1
Renegades	2-1
Rumblers	2-2
Guzzlers	2-2
Granfalloon	1-2
Dynatigers	0-2
Orange Crush	0-3
Phantoms	0-3
Life Supporters	0-4

NADC in the NEWS

The big news is...

NADC will outfit F-14 with new radar, electronics
Warminister NADC starts upgrading F-14
In for tests
'Top Gun' comes to NADC for testing
Warminster NADC begins job of fine-tuning the F-14

News items about NADC appear frequently in the Intelligencer/Record, Bucks County Courier Times, Today's Spirit, and the regional edition of the Philadelphia Inquirer. However, more often news items about the Center are regularly found in trade publications such as Aviation Week and Space Technology, Naval Aviation News, Defense News, Aerospace Daily and the like.

As a means of assuring that NADC is, indeed, in the news, we will be listing here the kinds of news we have released and some of those publications where stories appeared.

The most recent news clippings include:

- Aerospace Daily, Mar 18, 1989, "NADC developed composite avionic boxes set for fleet test"
- Aerospace Daily, Mar 7, 1989 "NADC seeks study of advanced active sonobuoy"
- The Intelligencer/Record, Mar 14, 1989, "Civilian gets Navy award"
- Today's Spirit, Mar 29, 1989, "Air Station, NADC report honors, awards"
- The Philadelphia Inquirer NEIGHBORS, Apr 2, 1989, "Petty Officer Fordham , Sailor of the Year"
- The Philadelphia Inquirer NEIGHBORS, Apr 7, 1989, "Becker, Civilian Servuce Award"
- The Philadelphia Inquirer NEIGHBORS, Apr 13, 1989, "Making science come alive for high school students"
- The Intelligencer/Record, Apr 17, 1989 "Director named outstanding engineering alumnus"