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NADC

Reflector

Volume 35 Number 1 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. January 1990

In This Issue:

They said it couldn't be done

NADC decoy fools technical experts

By John Oakley and Mary Ann Brett

"Experts said it couldn't be done," said John Oakley, "at least not on a decoy of this size." Oakley was referring to the radio frequency (RF) expendable decoy designed and developed under the Straight-Through Repeater Antenna Performance (STRAP) program at NADC. Oakley, of the Electronic Warfare Branch is the STRAP project engineer.

The first tri-service expendable Decoy program, STRAP is the next step in developing more sophisticated decoys with greater capability. The purpose of the program is to design and develop an RF expendable decoy which will protect Navy and Air Force tactical aircraft and also Army Special Electronic Mission Aircraft (SEMA) from current and future surface-to-air and air-to-air missile threats.

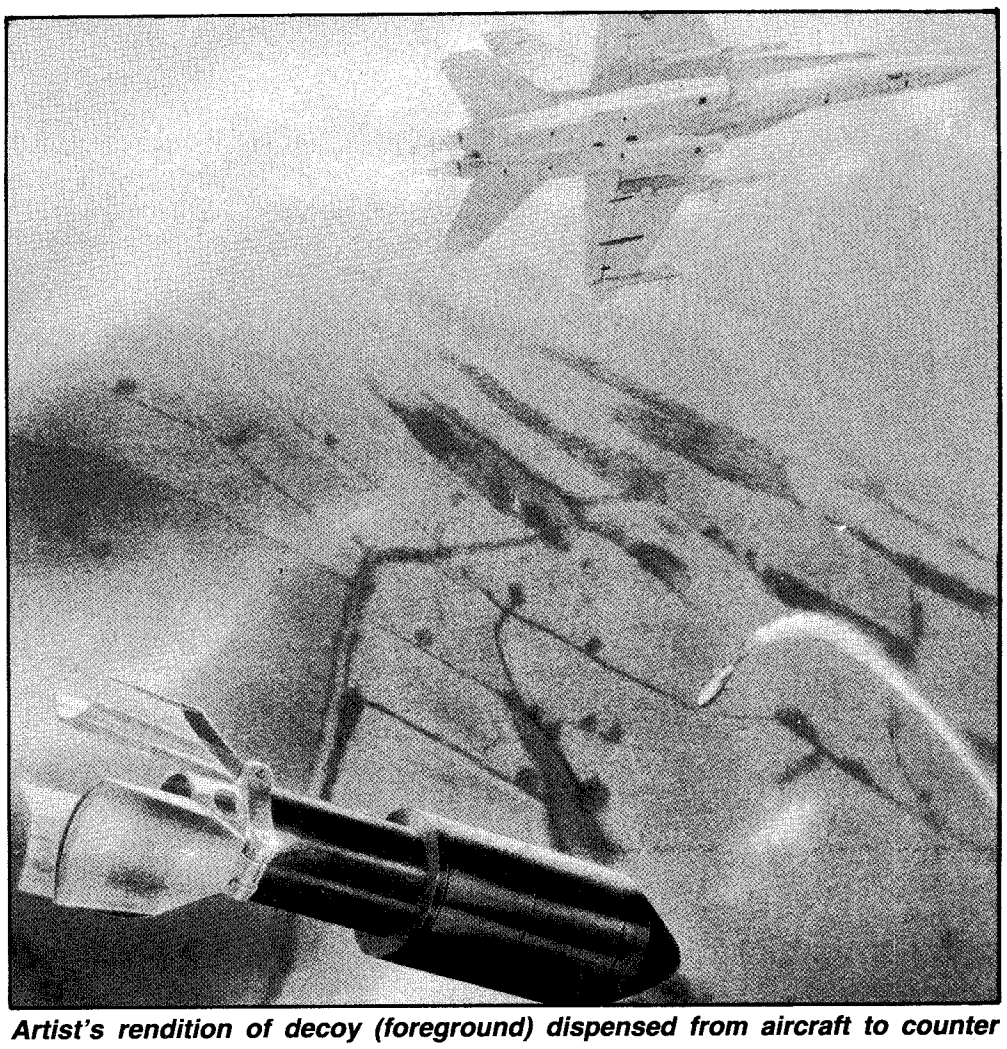
The device will provide increased capability so a single unit can decoy many advanced threats at the same time. STRAP will be compatible with the existing Navy, Air Force, and Army countermeasures dispensers. In addition, it will be in-flight programmable when used with the new joint service AN/ALE-47 dispensers. The STRAP decoy will have programmable modulation suitable to deceive sophisticated threat systems.

According to Oakley, the STRAP program has overcome tremendous technological challenges. One of the greatest challenges was achieving sufficient RF isolation between the receive and transmit antennas on a body approximately 6 inches long, while maintaining the high gain, broad antenna patterns and specified effective radiated power required to protect aircraft. This level of capability had never been achieved before.

During Phase I of the program hardware was developed and tested. The required parameters mentioned above were not only met but exceeded. These results were achieved due to innovative advances in state-of-the-art antenna isolation techniques.

Five competing contracts were awarded in September 1988 for the

Continued on page 8



Artist's rendition of decoy (foreground) dispensed from aircraft to counter incoming missile.

Performance document revised

Advanced Tactical Surveillance (ATS) System

The Advanced Tactical Surveillance (ATS) System Design Team recently completed a major revision to the Top Level Performance Requirements (TLPR) document. That draft of a document originally written in its entirety at NADC now incorporates additions and modifications resulting from hundreds of man-hours of review by Center technologists and extensive interaction with Fleet, NAVAIR Headquarters and personnel representing other laboratories/field activities. NAVAIR continues to plan on use of the TLPR as a technical annex to the ATS Statement of Work. It is also being used as a baseline for the ongoing Operational Requirement revision.

The Advanced Tactical Systems Division, with support of the VS Program Office, also presented to senior NAVAIR personnel the results of an assessment of the A-12 aircraft as a candidate platform for ATS. That technically comprehensive presentation has been adopted as part of the more general briefing NAVAIR is preparing on ATS System options.

Warminster township 'a-tax' NADC

By Jim Kingston

Most of us NADC'ers expected to have a direct stake in the fortunes of Warminster Township on January 1, 1990. That's the date we expected to become taxpayers . . . to the tune of 1% of our earned income. However, we had a temporary reprieve . . . the result of a tumultuous board meeting held on Sunday morning, December 31st. Hundreds of residents and other interested parties, including many NADC employees, showed up to register strong, vocal opposition to the proposed tax. As a result, the matter was tabled and a meeting to vote on a new budget scheduled for January 16. At that meeting, despite the angry protests of more than 1,000 residents, the tax passed.

The township Board of Supervisors, in order to make up for an unfunded increase of approximately $2 million in its 1990 budget, voted to establish the wage tax which impacts virtually everyone who lives or works in Warminster. Since NADC is the single largest employer with an annual civilian payroll in excess of $102 million, our share of the budget funding could be more than $1 million or half the total budget increase.

The tax will work this way: according to township officials and solicitor, Richard Molish, if you both live and work in Warminster Township, you will have to pay the full 1% tax based on your *earned income*. Our Civilian Personnel Office reports that 423 Center employees fall into this category. Earned income is generally defined as monies received in the form of wages as opposed to interest on savings or other investments.

Those of you who live outside Warminster, but who work here will also be required to pay the tax. However, there are variances from that rule: if the municipality where you live has a wage tax, then its tax takes precedence. If the rate is less than the 1%, then you would pay varying amounts both to Warminister through payroll deduction and remitted to your home township. Finally, those who live in Philadelphia with its already high wage tax, will pay nothing to the township. Military personnel are also affected and will be required to pay the tax. However, retired pay will be exempt. The tax is expected to go into effect March 1.

January is:

National Blood Donor Month

see page 4

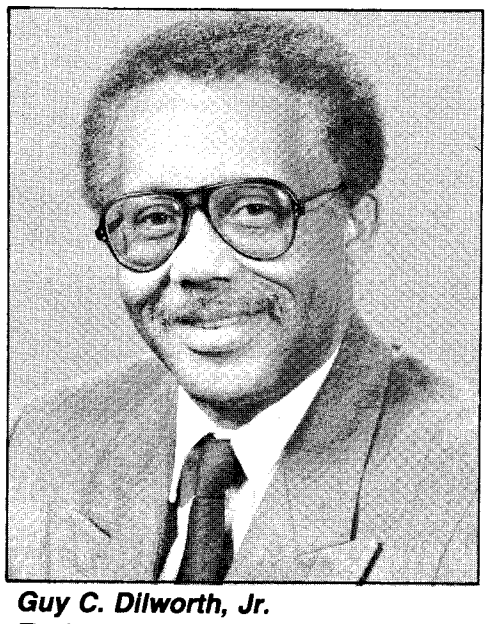
February is:

Black History Month

see page 4

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Commander Salutes

John Satriano (Code 40): For guidance during repair of the SEA BEAM system aboard the USNS KANE.

Morton Metersky (Code 30): For valuable participation in the Naval Postgraduate School Joint Command, Control, and Communications curriculum.

William Roadfuss, Lloyd Smith, Anthony Cicale, Harry Cain (Code 80): For contribution as designers of the beautiful display cabinet for Fellow Awards.

JO2 Michael Delledonne (Code 04): For community service as Assistant Varsity Basketball Coach for Archbishop Wood High School.

Scott Cote (Code 60): For outstanding efforts in assisting the Naval Air Systems Command in preparing a cost estimating methodology for the Aircraft Engine Component Improvement Program.

James Kingston (Code 04): For outstanding efforts and professional attitude displayed during Eagle Scout visitations.

Roman Fedorak (Code 50): For dedication in the planning and execution of the AFCEA sponsored 1989 Nonvolatile Memory Technology Review.

Francis Chamberlain, Carmen Pontelandolfo, Norwood Metcalf, Stephen Wichrowski (Code 50): For significant contribution in support of the VPU2.

Food Services Board Members: For the special luncheon on behalf of the Command/Technical Director Awards Day.

Ross Barcklow, Linda Nagey, and William Roadfuss (Code 80): For technical services in support of the Commander/Technical Director Awards Day.

Letter to the Editor

They shoot smokers . . . don't they?!

Dear Editor,

Nothing could be more reasonable than our policy permitting smoking in private offices where vistors can be treated to a blast of solid smoke, while disallowing smoking in high ceilinged, well ventilated hallways where smoke could rise and dissipate. This generous concession on our part has failed to enlist the cooperation of the smokers among us. They seem unable to follow our logic. Due to their failure to adhere to our policy, the Ban the Smokers League has taken over only about 95% of the Center. The dreadful others demand the right to muck up about 5% of our spaces with their smoke. This is not good enough. There is no room for compromise on this issue.

We have tried name calling and insults, which seem only to amuse these reprobates. Now we must indeed initiate a policy of citizens arrest as suggested in your last published letters column. However, to ensure that we apprehend all of these criminals, we will require that all suspected smokers wear black armbands. (They can't fool us. We KNOW who they are.) It will be our duty to police the banded persons very closely. If we catch them hiding cigarettes we shall stomp on their insteps with our high heels. If their abominable behavior continues we should drag them outside the gates of the Center and pummel them with stones, or burn them at stakes. On second thought, it might be neater and more cost effective if we just shoot cyanide into their cigarettes.

If I remember correctly, Irvin S. Cobb said that "Some things are so ludicrous that one must either laugh or die, and to die laughing must be the most glorious of all glorious deaths." Most of these no-smoking harangues should be published in a cartoon script.

Jeanne M. Canton
Code 7001

Photo by Cathy Burian

Muscle cars show more muscle —

Tom Cockley and John Iacovetti of the Delaware Valley Camaro Assn. present a plaque to CAPT C. J. Winters for all NADC's help during their Muscle Car Show. The Club donated $320 to Morale, Welfare and Recreation (MWR). Accepting for MWR is Recreational Services Division Head Ron Brewer (far right).

If the SOC fits

By Robert Janes

The big news in the Standards of Conduct (SOC) area during 1989 was the Procurement Integrity law, which took effect on 16 July. After a lot of effort on the parts of a lot of people to implement this, not only at NADC but throughout the federal government, the law has gone away, at least for the time being. It has been suspended for a one year period, beginning 1 December 1989. The President reportedly wanted the law repealed because of the difficulties he was encountering in trying to attract people to work for his administration — many people were reluctant to take high level positions in the administration for fear that, given the post-employment restrictions in the law, their post-government employment opportunities would be too restricted. Whether or not the law will go back into effect in December 1990 remains to be seen. In the meantime, several things which were prohibited by the law remain prohibited by other existing laws and/or regulations. Thus, it is still impermissible to accept gratuities from defense contractors, to disclose sensitive procurement information, or to negotiate for future employment with a company with which you are currently involved on the job.

The Procurement Intengrity law suspension does, however, change two key things:

Certifications — There is no longer any requirement for employees to complete a procurement integrity certificate.

Post-employment restrictions — The two year prohibition against working on a particular contract on which you had earlier served as a procurement official is no longer in effect. (I should note, however, that other, less stringent post-employment restrictions continue to apply under other laws).

The Office of Counsel will provide additional guidance on the suspension as it becomes available. If any of you have questions about this, please feel free to contact us on extension 3000.

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Small business minority fairs well

By Mary Ann Brett

Resulting from an NADC Small Business Office initiative, nearly 20 minority and women-owned businesses set up booths in the hangar for a networking fair. Other DoD small business specialists and prime contractors also attended.

According to John Scott, NADC's Deputy for Small Business, "Based on company and employee turnout, the fair was a success."

Photo by JO2 Michael Delledonne

NADC engineers and scientists and other small business specialists from the Philadelphia area discuss exhibitor capabilities.

Photo by JO2 Michael Delledonne

Purchasing agents Mike Valdivieso and Dolores Falco review a company brochure.

Photo by JO2 Michael Delledonne

Fair attendees review and discuss exhibitor wares.

America's workforce is changing—are you?

By Kathy Gause

Homogeneity has been replaced by diversity—diversity in ages, races, ethnic and national backgrounds, physical abilities and lifestyles. We all need to acclimatize ourselves to the changing environment of NADC. "Cultural Diversity" is a term now used to describe how diversified our work force has become and how much more so it will be by the year 2000.

More minorities and women will be working and there are even projections that these groups will become the majority. In the American work place each supervisor must provide for an environment which encourages productivity. This responsibility will become more challenging as each culture brings unique contributions to the work environment. The smart supervisor makes the best use of her/his human resources.

When someone from private industry comes to work at NADC, the acronyms we use like NAVAIR, SPAWAR, TACAMO, VSTOL and ASW, might seem foreign for awhile. When college students work here for the summer, they use a certain modern rhetoric which may not yet be found in our dictionary but when Webster's "freezes out" (loosens up) it may be added. Most permanent employees accept the new vocabulary, and along with the new faces, the naivety and the individual strengths and weaknesses—with the tolerance of experience.

Unfamiliar cultures are integrating into the new American work force at a dramatic rate, bringing changes and the potential to enhance productivity. It is only natural that these entrants will bring to the workplace their individual characteristics and languages which may not be so palatable to some employees. "Why should 'we' change — why not let 'them' do all the changing and adapting?" some employees ask. This is a natural response. The use of foreign languages by co-workers, for example may be disturbing. However, it is acceptable and may not be forbidden in the workplace.

As others have helped us, let's help our co-workers as much as we can to fit in. Diversified cultures, habits and languages are something we all have to learn to work with. The first step is to understand and value diversity.

Three new 20-minute videos are now available from the EEO office on cultural diversity in the work place: "Managing Differences," "Diversity at Work," and "Communicating across Cultures." All employees and supervisors are encouraged to view at least one. Department EEO committee representatives will be scheduling viewings for each department during the first quarter 1990. The EEO staff are available for supplemental discussions following the videos. After all the departments have been scheduled, videos will be available for employee borrowing on a 24-hour basis.

(Editor's note: Kathy Gause is the Center's Deputy Equal Employment Opportunity Officer, Code 036, ext. 3061.)

New standards for energy savings

By Michael Blank, P.E.

In ten years we will be in the 21st Century. With the new century will come new developments in energy standards and savings.

New development standards for refrigerators and freezers will cut average consumption by at least 25 percent when they are implemented in 1993.

According to the Deputy Secretary DOE, W. Henson Moore, "These standards are tough, but they strike a reasonable balance between what is technologically feasible and economically justified. They send a signal that this administration is serious about energy conservation."

"The new standards will benefit the environment by reducing the need for additional generating capacity and reducing power plant emissions," Moore said. Projections indicate that from 1993 to the year 2015, the standards will save 5.2 quadrillion BTUs of energy or 452 billion kilowatt-hours of electricity.

By 2015 the new standards are expected to have reduced the emissions of carbon dioxide, sulphur dioxide and nitrogen dioxide in the generation of electricity by 9.834 million tons, 126,365 tons, and 94,624 tons, respectively.

Let us look at the future of transportation. The transportation sector uses a quarter of the energy and half the oil consumed in the U.S. The automobile uses the bulk of the transport sector's energy. It is possible that we will be driving automobiles with solar or ceramic engines providing faster acceleration and at least 30 percent greater fuel economy than present 4-cylinder engines.

But in the meantime, a number of minor modifications in car care could promote significant savings. Poorly tuned engines and improperly inflated tires can impose 6 to 10 percent more fuel use.

We live in a very exciting time. High-technology such as in computers, lasers, satellite transmissions, fiber-optic communications, VCR, cable TV, microwaves etc. has become part of our lives. New inventions and ideas give us the opportunity to improve our quality of life and better utilize energy savings.

Black History honored at NADC

By Liz House

February is African-American (Black) History Month and this year it is dedicated to Carter G. Woodson.

Woodson, educator, historian, author and founder of the Association for the Study of Negro Life and History was widely regarded as the leading writer of his time on Negro History. The association collected valuable books and documents on black history, produced texts such as the Journal of Negro History, and helped train black historians. Woodson encouraged scholars to engage in the intensive study of black history and in 1926 helped bring the achievements of his race to the world's attention by designating a week in February as Negro History Week. In 1972 the name was changed to Afro-American (Black) History Week due to the increased racial pride and awareness that had spread throughout the country. In 1976 Afro-American History Week became Afro-American History month to provide more time for cultural programs and observances.

The Center's observance will kickoff on Thursday, February 1 with Dr. Kariamu Ashanti of Temple University speaking on "The Legacy of Carter G. Woodson." Two films will be shown, "Flyers in Search of a Dream" and the ABC documentary "Black in White America." F-14 pilot Commander Charles Nesby, features in the documentary, and Clayborne Hughton, Director for Civilian Equal Opportunity Policy, will appear in the Center Auditorium. There will also be breakfast specials and a African-American food sampling in the hanger bay. Watch for specific dates and times for each of the activities in the Log and the Black History Month calendar of events.

THE KING DREAM
(WORDFIND)

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ALL, BROTHERS, CIVIL RIGHTS, DEMOCRACY, DIGNITY, DREAM EQUALITY, FREEDOM, GREAT HISTORY, HONOR, HOPE, HUMANITY, JUSTICE, KING, LIBERITY, LIFE, LOVE, MARCHES, MEMORY, NON-VIOLENT, PEACE, PEOPLE, PRIDE, SANITY, SISTERS, TOGETHER

BLACK HISTORY MONTH
CRYPTOGRAM

QA. YHADRA M. VEEQPEI OEZIQRQ DKR HPPEYXHDXEI OEA DKR PDZQT EO IRMAE SXOR HIQ KXPDEAT, HIQ VAEDR DKR WEZAIHS EO IRMAE KXPDEAT.

Dr. Carter G. Woodson founded the Association for the Study of Negro Life and History, and wrote the Journal of Negro History.

ANSWER

ANSWERS TO TEST YOUR KNOWLEDGE

1. C	5. G	9. H	
2. F	6. I	10. A	
3. J	7. D		
4. B	8. E		

TEST YOUR KNOWLEDGE

1. What was the first play by black playwright Lorraine Hansberry to win the New York Drama Critics Award as Best Play?
2. Whose autobiography is entitled The Third Door?
3. Who is the author of Cotton Comes To Harlem?
4. Who wrote the best selling novel The Color Purple?
5. She has been called the leading black poet of our times. Who is she?
6. Who wrote To Kill a Mockingbird?
7. Who wrote The Autobiography of Miss Jane Pittman?
8. What was the title of Maya Angelou's autobiography?
9. Prior to Gone With the Wind in the 1930's, what was the most popular book sold in the US?
10. Who wrote To Be Young, Gifted and Black (1968)?

a. Lorraine Hansberry
b. Alice Walker
c. A Raisin in The Sun
d. Ernest Gaines
e. I Know Why The Caged Bird Sings
f. Ellen Tarry
g. Nikki Giovanni
h. Uncle Tom's Cabin
i. Harper Lee
j. Chester Himes

Make a difference – give blood

By Mary Ann Brett

January is National Volunteer Blood Donor Month; however blood donations are a year-round need.

The American Red Cross conducts blood drives quarterly here at NADC. While hundreds of employees, both military and civilian, continuously turn out to give blood, many more are desperately needed.

According to the American Forces Information Service, and the American Blood Commission only 5 percent of the American people give blood regularly. The 12 million units of blood collected in the United States every year come from the same people. It is medically safe to do that — as President George Bush pointed out in a message urging the American people to give blood, "Most adults can give blood as frequently as every eight weeks."

Bush said that if you give blood, "You will have the great satisfaction of knowing that you have chosen one of the most selfless ways to help another human being — someone whose very life may depend on your decision."

According to the Armed Services Blood Program Office, anyone can give blood who is in good health, weighs at least 110 pounds and is over 17 years old.

There is no risk of getting AIDS or any other disease from being a donor. Blood is drawn using sterile, disposable needles and connecting tubes. To ensure the safety of blood donors, the Food and Drug Administration regulates the manufacture of blood-collecting materials as well as the operation of all blood donation centers.

Each unit of blood is tested for HIV (the virus that causes AIDS), HTLV-1 (another virus), hepatitus non A, hepatitus B and some sexually transmitted diseases such as syphilis.

Reasons for not giving blood include: pregnancy, colds, use of self-injected drugs, malaria, diabetes, epilepsy, heart trouble, extremely low blood pressure, cancer, hepatitis and major dental work within the last 72 hours.

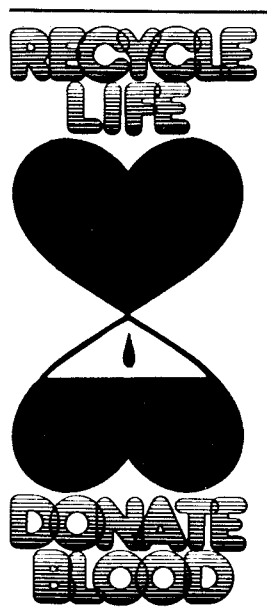
The Navy Blood Program provided the following "lousy" reasons for not giving blood:

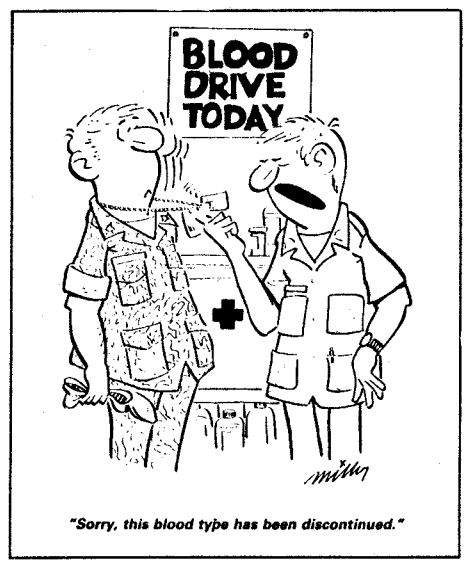
- □ "I don't have any blood to spare." If you are reasonably healthy, you've got 10 to 12 pints in your body, enough to give every eight weeks.
- □ "My blood isn't the right type." Every type of blood is needed.
- □ "They'll take too much and I'll feel weak." The amount taken is less than one pint. Your blood volume will be replaced in a few hours. Most people continue their normal activities after donating.
- □ "I'm too busy." Positively the lousiest excuse ever invented.

The Center's next blood drive will be held on March 7 and 8 — please give the gift of life.

Those who participated in the December 1989 drive are:

Code 00—Winters, C., Murphy, J., **Code 02**—Ballman, D., Hopper, E., Lentz, M., Lips, L., Turner, E., Vollrath, L., Wright, C., **Code 03**—Beans, B., Devlin, M., Grubb, M., Henry, K., Miller, J., Pomrink, R., Savage, L., **Code 04**—Driscoll, J., Konopka, S., Pessano, J., Vigelis, M., **Code 05**—Kaniss, A., Marzzacco, R., Newman, K., Whelan, L., **Code 09**—Janes, R., **Code 10**—Abramson, F., Alcott, G., Bittenbender, L., Bowes, J., Dean, B., Dicristofaro, V., Farber, S., Fields, D., Garofalo, M., Guignard, R., Hungerford, R., Irvin, J., Janinek, M., Jantini, J., Kwiatkowski, A., McEntire, K., McFadden, J., Oakley, R., Parker, R., Pickett, D., Reis, T., Rubinsky, E., Strobel, D., Tessitore, T., Torok, G., Wentz, W., William, F., **Code 20**—Catricks, S., Colombo, J., Erney, D., Gombos, R., Hester, J., McGlynn, A., Michalski, T., **Code 30**—Brookes, R., Bumgardner, P., Carbo, D., Douglas, M., Mackey, C., McHugh, B., Muffitt, E., Onorato, N., Sztubinski, D., Vanwyk, C., **Code 40**—Adams, B., Beach, E., Bryant, J., Buggy, J., Campione, M., Deebel, W., Doll, J., Goodrich, J., Hogg, R., Kee, S., Kister, T., Klopfer, W., Kordess, M., Muller, R., Owens, D., Reis, N., Schoppe, W., Zane, W., Zeigler, J., **Code 50**—Ailes, W., Campana, S., Campbell, C., Dondero, R., Faller, K., Harris, J., Hart, L., Haugh, B., Hontz, R., Matura, M., Miller, D., Potchak, S., Roach, L., Rush, P., Schmidt, E., Schuck, D., Tepper, J., Termine, F., Thompson, C., Ulrich, P., Wagner, M., Vendetti, A., Walker, M., Waynick, A., Yoshida, A., **Code 60**—Agnew, D., Alper, J., Barrett, D., Becker, W., Connors, J., Contarino, R., Crea, F., Darrigo, D., Douglass, M., Doyle, M., Dugan, C., Emery, R., Eng, A., Garber, R., Gluz, G., Hedgedus, C., Henderson, J., Humm, G., Hynes, M., Iaconis, M., Kieter, C., Kelly, K., Kuster, F., Mancini, P., Miller, C., Minnucci, J., Nortaro, J., Ohlson, J., Petropoulos, H., Shaffer, I., Shender, B., Skriver, C., Thomas, M., Waldman, L., Wells, D., Wills, K., Wright, J., **Code 70**—Aldret, R., Azarewicz, J., Delisi, G., Glemser, R., Heithecker, C., Hernadez, N., Huber, E., Ling, H., Lenko, J., Martinell, J., Murin, H., Nuss, W., Piras, R., Peston, C., Rachiele, J., Robinson, J., Robinson, S., Schmiedekamp, C., Steinley, M., Tidwell, J., Wolfgang, L., Youssef, P., Zwissler, R., **Code 80**—Clay, J., **Code 81**—Callahan, M., Devalle, J., Grant, P., Miller, L., Moore, R., Mitchell, D., Rothermel, E., Rozalski, M., Stasse, D., Williams, L., **Code 83**—Broome, L., Brown, W., Gardner, T., McKenna, W., Mosakowski, A., Picciocchi, E., Rassier, W., Tarantino, M., Varner, D., **Code 84**—Berry, J., Durie, J., Green, S., Kelly, C., Murphy, W., O'Connell, J., Palaia, M., Panetta, D., Pendergrast, K., Pettorini, R., Reed, R., Singleton, W., **Code 90**—Myers, W., Sickler, L., **Contractors and Others**—Battista, E., Caraluzzo, P., Columbo, J., Delaney, D., DiGiovannantonio, J., Falkenberg, L., Fine, J., Green, R., Haney, E., Hunter, C., Jackaway, J., Kinney, K., Lazenka, F., Lips, J., Mahaffey, D., March, L., Mathis, D., McTague, J., Melby, R., Parson, J., Pauley, C., Peufifoy, V., Rice, V., Torres, N.





"Sorry, this blood type has been discontinued."

Science and Technology Day Awards

By Mary Ann Brett

The first (to be held annually) Science and Technology Day was held in the Center Auditorium and coordinated by Dr. Asha Vorma of the Technology Base Management Office. After remarks by both Center Commander Curtis Winters and Technical Director Guy Dilworth, twelve engineers and scientists made technical presentations to a full house. Presenters included Greg Catrambone, Thomas Hess, Irv Shaffer, Walter Schoppe, Dr. Robert Williams, Anthony Madera, Gerald Ferguson, Samual Delserro, Randall Sands, Anthony Passamante, Dr. Thomas Gabrielson, Christop Heitchecker and Dr. Chul Ho Oh.

Oh, of the Communication Navigation Technology Department received the Best Independent Exploratory Development Award for his presentation on Wideband Noise-like Waveforms. The Mission Avionics Technology Department's Passamante received the award for best Independent Research for his presentation on Diffusion Modeling for ASW.

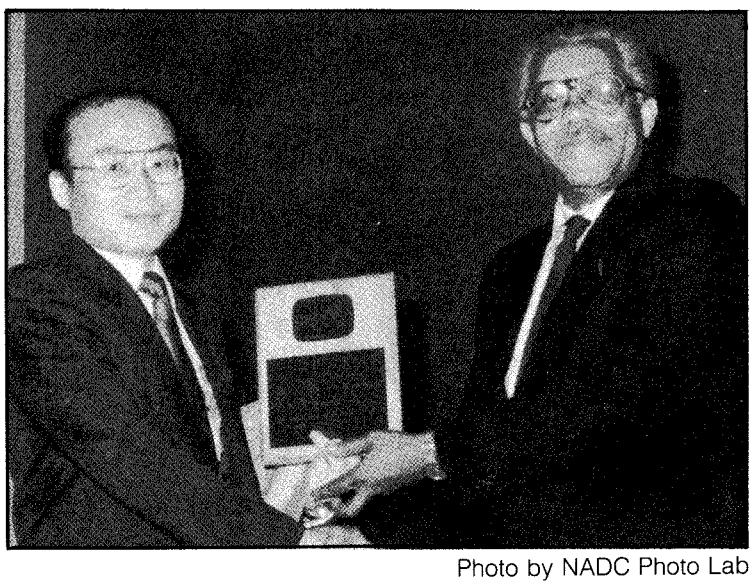


Photo by NADC Photo Lab

IED presentation winner Dr. Chul Ho Oh receives a plaque and congratulations from Technical Director Guy Dilworth.

Photo by NADC Photo Lab

IR presentation winner Anthony Passamante also receives a plaque and congratulations from Technical Director Guy Dilworth.

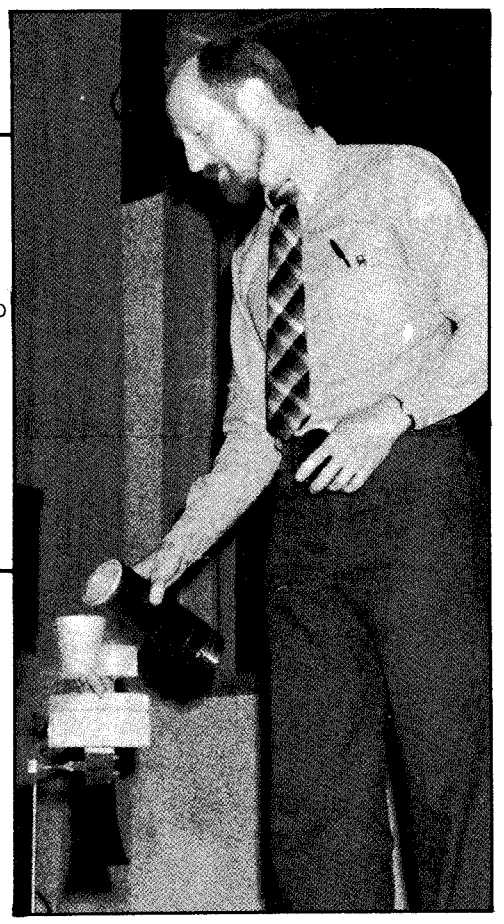


Photo by NADC Photo Lab

Tom Gabrielson demonstrates Thermoacoustic Source for HP Sonar.

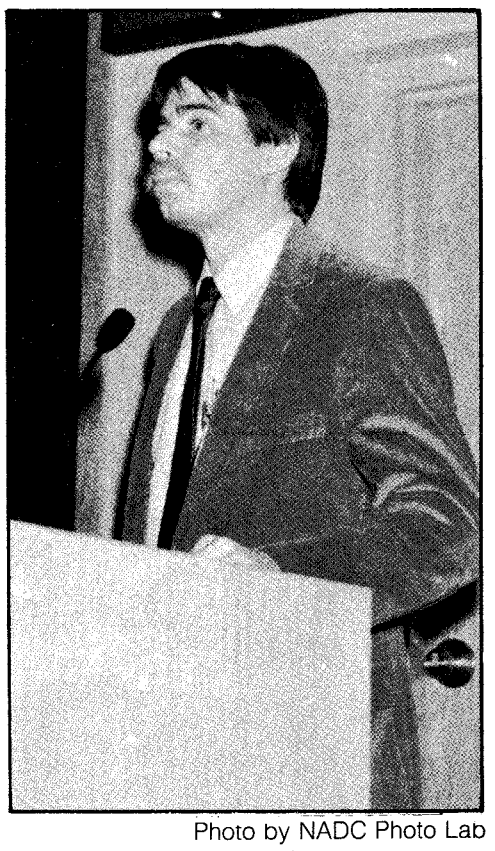


Photo by NADC Photo Lab

Christop Heithecker talks about ASW Threat Plan Recognition.

Technical Highlights

The Communication Navigation Technology Department successfully completed the technical evaluation of the Phase IV multibeam sonar array on the USNS HESS. This completes the SASS Phase IV upgrade on the three operational ships (USNS HESS, USNS MAURY and USNS WYMAN) currently supporting the Naval Oceanographic Office's Ocean Survey Program. The new construction ship, USNS TANNER, is expected to become operational in late FY-90.

The in-house developed Doppler Sonar Velocity Log System was installed on the Strategic Systems Program Navigation Test Vehicle, the USNS VANGUARD, and the system operated successfully during the initial sea trial. Follow-on testing will be conducted during subsequent sea trials during FY-90.

A patent was awarded to Dr. M. Gaer of the Precision Navigation Systems Development Division for a "Bistatic System and Method for Ocean Bottom Mapping and Surveying", Patent No. 07,321,084.

The Navigation Analysis and Systems Development Division has been responsible for development and concept feasibility demonstration of a geomagnetic navigation system. The system correlates real-time on-board measurements of the earth's magnetic field with stored maps to obtain position fixes in a passive, invulnerable manner. The Naval Sea Systems Command and operational command approvals were obtained for fleet installation subsequent to acceptance testing at EG&G Geometrics, NASA Ames Facility, Martin Marietta, Naval Underwater Systems Center, and Pacific Tsunami Warning Center. The system was deployed on a fleet platform during special testing at the Pacific

Continued on page 8

Tuition prepayment gets a thumbs up

By Mary Ann Brett

In October 1988, the Employee Development Division, headed by Training Director Dick Chern, put into effect the Evening University Tuition Prepayment (vice Reimbursement) Program.

This program was certainly of advantage to approximately 350 students enrolled in 31 local colleges and universities who would no longer need to advance hundreds, sometimes more than $1,000 to enroll in evening classes. However, the program could have caused administrative headaches if enough employees failed to complete their courses, since the Center would then be required to collect the prepaid tuition.

According to Chern, student response to a survey showed increased student morale and satisfaction with the new system. Fifteen percent responded they would not have taken courses and may have had to choose a different school without the prepayment program. He said, "It's interesting to note that student enrollment decreased with the introduction of tuition prepayment. This decrease is probably due to the completion of MS degree requirements by 25 students in 1988 and significantly fewer (83) Professional Scientific and Engineering Interns or board."

Under the new system, a "Letter of Indebtedness" was sent to approximately 6% of the students for failing to successfully complete a course. "While this resulted in a slight increase in administrative duties in Codes 03 and 02," said Chern, "the positive comments about the program and the increased morale of the students make the extra work worthwhile."

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

Welfare and Recreation presents . . . Santa

By Margaret Vigelis

The NADC cafeteria was all spruced up and decorated, the stage was set, all systems go . . . just waiting for the Civilian Welfare and Recreation (W&R) Association's annual Children's Christmas Party to begin.

At least 150 children from Christ's Home and Bethanna Home were welcomed by the Center Commander, Captain Curtis J. Winters. Steve Barrell (Code 832) dazzled the youngsters with his magic act and the NADC choir entertained them with songs of Christmas. Finally, Santa Claus, alias Gene Byers (Code 9122), arrived to give each and every girl and boy a gift. After Santa left, the children received a lunch of hamburgers, french fries, ice cream and soda. A great time was had by all.

The civilian W&R has held this event for the children in these two nearby homes for more than 25 years. According to Janet McGovern, Chairperson of the W&R, the success of this year's event was due to the efforts of the 1989 Children's Christmas Party Committee. Members of the committee were Phil Horne, Chairman, Becky Carr, Decorations, Mark Breidenthall, Gifts and Mark Seltzer and Janet Schmidt, Entertainment.

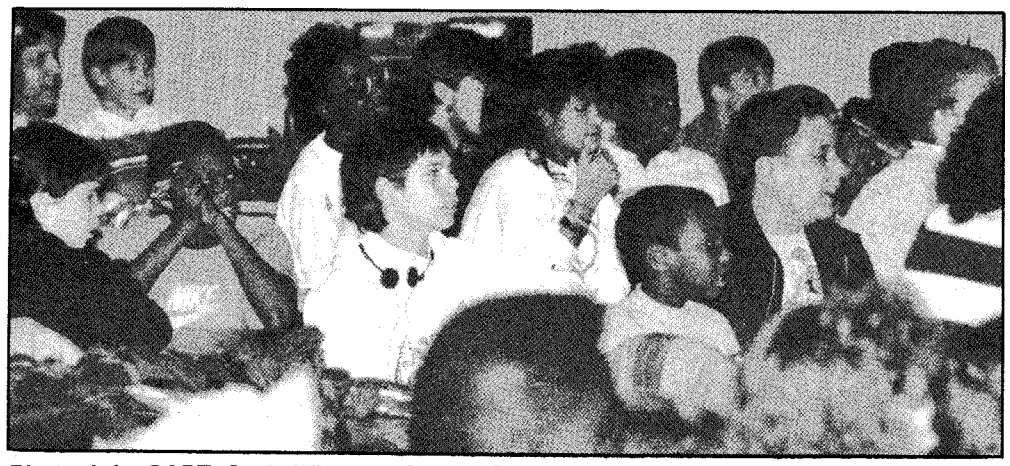


Photo left, CAPT C. J. Winters, Center Commander, started the festivities by welcoming the children from Bethanna and Christ's Home to NADC's annual Civilian W&R Children's Christmas Party. Photo above, the children wait with anticipation for the show to begin.

Santa is known for bringing happiness and presents to every good little girl and boy . . . and from the smiles on the faces of the children in the photos to your left, Santa is doing just that!

Don't take it sitting down

Experts say standing can cut meeting time in half.

According to meetings expert Dr. Roger Flax of Motivational Systems, stand-up meetings can be held in only 50% to 60% of the time needed for traditional time-consuming "sit and stay" meetings and stand-up meetings are more action-oriented, purposeful and productive.

"When you remove the chairs, the ash trays and the doughnuts," says Flax, "participants come right to the point. They don't settle in and get overly relaxed.

They're not distracted by side-issue conversations with people sitting next to them. They don't lose their concentration by sipping coffee, munching pastries, smoking or doodling. And they don't doze off."

He says people actually do think better on their feet: "Standing up injects a sense of urgency. It stimulates discussion and encourages the participants to quickly accomplish their objectives and finish the meeting. Standing also gets the juices flowing and increases energy, animation and emphasis on key points."

Flax also pointed out that many medical authorities advise standing up while speaking, even on the telephone, because it increases lung and breathing capacity.

Some of Santa's helpers who made NADC's Civilian W&R Children's Christmas Party special. Left to right, Erv Rothermel, Pat Walter-Curaluzzo, Roseanne Petro, Becky Carr, Ellen Garofalo, Phil Horne, Mark Breidenthall and Mark Seltzer.

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 March 1990 are:

- Commander Technical Director Awards (Cash):
  - Scientific Achievement
  - Engineering Achievement
  - Analysis/Analytical Achievement
  - Project Leadership
  - Technical Support
  - Administrative Support
  - Aviation Support
  - EEO Program Support
- Philadelphia Area Navy Equal Employment Opportunity Council (PANEC) Equal Employment Opportunity (EEO) Award (Honorary)
- Mary D. Pinkard in Federal Equity Award (Honorary)
- Training Officers Conference Distinguished Service Awards (Honorary)
- Federation of Government Information Processing Council Awards (Honorary)
- Board of Governors Award for Excellence in Civilian Personnel and Equal Employment Opportunity (Honorary)

No warmth without safety

By Evelyn D. Harris
American Forces Information Service

According to the Consumer Product Safety Commission, at least 171 injuries in 1988 and 354 in 1987 were related to electric blankets. The commission got those figures from 62 hospitals nationwide that are part of its Nation-wide Injury Surveillance System.

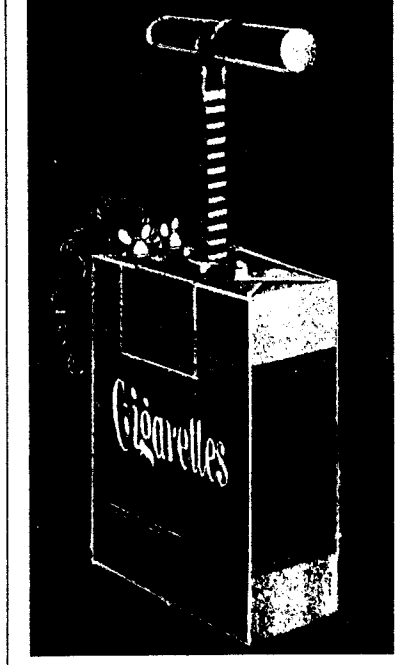
Here are some more tips for keeping safe while keeping warm:

- □ Don't use the blanket with infants or young children, invalids or anyone who is insensitive to heat.
- □ Don't bunch the blanket—wires can overlap and overheat.
- □ Turn the blanket off and unplug it when not in use.
- □ Don't let pets sleep on the blanket.
- □ Don't tuck the wired area of the blanket under the mattress.
- □ Don't put anything on top of the blanket when in use, not even folded at the foot of the bed.
- □ Don't use the blanket in front of an open window—it could overheat.
- □ Don't use it near a heating system—it may not operate.

Researchers recommend limiting use of electric blankets to warming up the bed before getting in and then turning it off. Of the possibility of excessive exposure to electromagnetic fields some scientists believe such exposure can increase the risk of getting cancer.

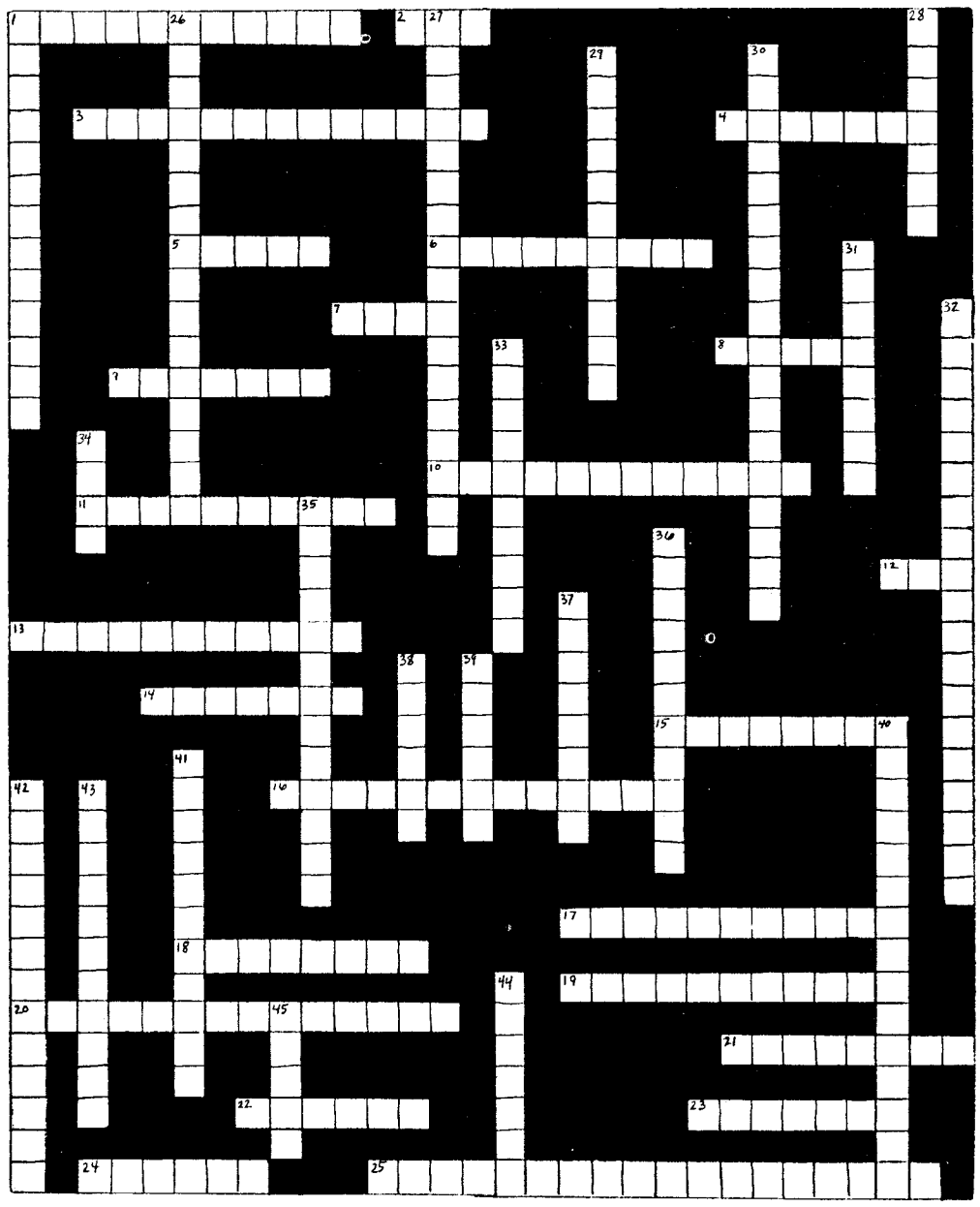
Calories used in 20 minutes of different activities

ACTIVITY	CALORIES USED
Baseball	81
Basketball (moderate)	124
Bicycling—12 mph	188
Calisthenics	75
Canoeing	124
Cross-country skiing	205
Dancing	74
Dancing-aerobic	105
Downhill skiing	169
Driving	45
Field hockey	217
Football	145
Golf	85
Hiking	140
Horseback riding (trot)	119
Housework	63
Ice hockey	54
Ice Skating	100
Jogging—6 mph	160
Judo	198
Officework	45
Racquetball	171
Roller skating	100
Rowing machine-400 strokes	206
Running—7 mph	245
Sailing	51
Skipping rope	245
Sleeping	18
Snow shoveling	136
Snowshoeing	160
Soccer	157
Softball	65
Standing (no activity)	23
Swimming—800 yds.	152
Table tennis (ping pong)	58
TTennis-singles	121
Volleyball	100
Walking—2 mph	83
Walking—4.5 mph	100
Watching television	18
Yardwork	54



WARNING:
The Surgeon General has determined that cigarette smoking is dangerous to your health.

Black History Crossword Puzzle



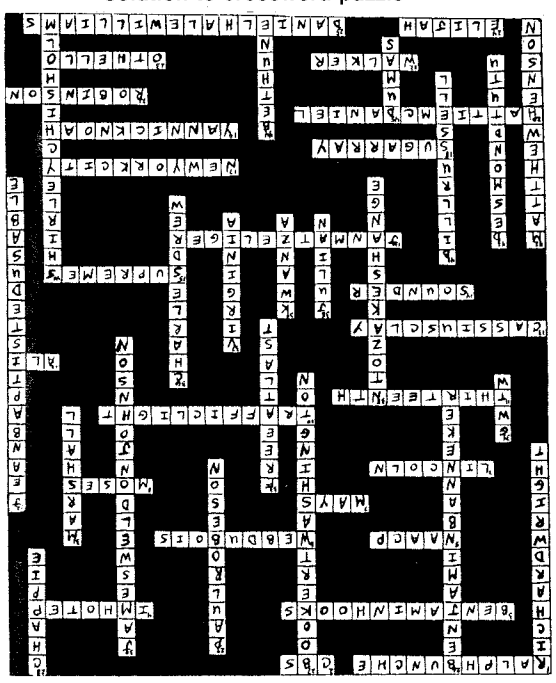
Across

1. First Black to win the Nobel Prize.
2. Network Ed Bradley of "60 Minutes" works for.
3. Current director of the NAACP.
4. Ancient Egyptian physician who 4000 years ago first described the circulation of blood.
5. Organization founded on the 100th anniversary of the birth of Abraham Lincoln.
6. First Black to graduate from Harvard with a Ph.D.
7. "Say Hey!" author, (last name)
8. Nickname given to Harriet Tubman.
9. Name of first Black University.
10. Garrett Morgan was the inventor of what?
11. Amendment that abolished slavery.
12. "Most recognized face in the world" during the 70's. (last name)
13. Muhammad Ali's name prior to changing it.
14. 1972 movie Cicely Tyson received an Academy Award nomination for.
15. Diana Ross, Florence Ballard and Mary Wilson.
16. Inventor of the shoe-lasting machine.
17. David Dinkins is mayor of what city?
18. Boxer Leonard adopted his name from this boxing great.
19. First Black to win French Open.
20. First Black woman to win the Oscar.
21. First Black athlete to sign with the Montreal Royals in 1945 and first Black to be elected to the Baseball Hall of Fame (last name)
22. Woman who revolutionized the Black hair care industry, helping her to become the first Black female millionaire.
23. The Moor of Italy.
24. Inventor and for whom the expression "The Real McCoy" originated. (first name)
25. Performed first successful open heart surgery in 1893.

Down

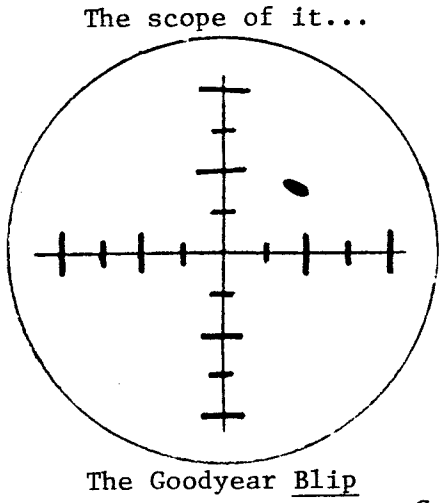
1. Author of "Native Son".
26. Inventor of the first clock.
27. First Black honored on a postage stamp.
28. First Black four-star general, "_____" James.
29. Artist, athlete, singer and actor who starred as Othello on Broadway in 1943.
30. Lyricist of "Lift Every Voice and Sing".
31. First Black Supreme Court Justice (last name).
32. Founder of the city of Chicago.
33. Last words inscribed on Dr. King's tombstone (3 words).
34. Hattie McDaniel won an Oscar for what film? (abbr.)
35. Playwright of "For Colored Girls Who Have Considered Suicide — When the Rainbow is Enuf".
36. Perfected the technique of blood transfusion.
37. L. Douglas Wilder is first Black Governor of what state?
38. Developed a drug for the treatment of glaucoma (last name).
39. African holiday celebrated during Christmas.
40. First Black woman to be elected to Congress.
41. First Black man to coach a major professional sports team.
42. First man to discover the North Pole.
43. 1984 Nobel Prize winner from S. Africa.
44. Confidante and advisor to Franklin Roosevelt who founded and built a well-known southern college bearing her name.
45. Author of "The Three Musketeers".

Solution to crossword puzzle



Cartoon Corner

The scope of it...



The Goodyear Blip

Submitted by
Don Promish
Code 3012

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Mixed League Bowling News

By Tom Reiter

Our First Half ended on January 3rd with Divisional Knockdowns (1st place vs 2nd place; 3rd vs 4th etc.). The B Division was already decided, having been won, going away, by **Al Knobloch's** dreaded Goofers (49 Wins—15 Losses). The A Division was another story. **Helene Goldstein's** 11th Frame (38-26), needing 2 points for the title, met **Wes Gleason's** Gutter Dusters (36.5-27.5). It would have been great for the underdog Frame to win their first trophy, but it wasn't to be. Wes's wonders, helped by Gleason's 234-224-181 night, did what they had to do, winning three points. After losing the second game by a scant 6 pins, the **Goldstein, Weathers, Halko,** spousal 11th Frame trio, battled back to win the third game but couldn't quite make up the total pinfall count for a needed 2 point split. Final standings: Gutter Dusters 39.5-28.5, 11th Frame 39.0-29.0. The third place Red Winos (36-28), who could have stolen the half by winning all 4 points, won only 3, losing the second game to **Mike Lizbinski's** Warveyhallbangers by 10 pins (That sound you just heard was this Reiter still choking a little). Elsewhere around the League on knockdown night, other 200 games were bowled by **Steve Jerden** 223, **Ernie Wykes** 210, **Scott Fowler** 210-205, **Dave Ader** 231, **George Delisi** 224, **Joe Emperly** 203, **Claire Bayer** 200.

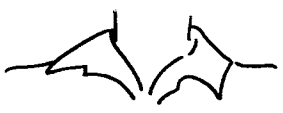
Congratulations to our first half winning teams and individuals:

CHAMPIONS

A DIVISION—Gutter Dusters	
Wes Gleason (c)	
Pete Huber	
Aaron Davidson	
Jack Kinsky	
Dom Zaccaria	
Bruce Vaughn	
Mary Vaughn	
Pam Kinsky	
Ann Fowler	
Chris Zaccaria	
HIGH AVERAGE	
Wes Gleason	190
Linda Stickney	166
HIGH SERIES	
Wes Gleason	653
Lorrie Dunn	548
HIGH SERIES WITH HANDICAP	
Jim Campana	701
Helen Catto	700
HIGH SINGLE	
Mike Dent	267
Linda Stickney	221
HIGH SINGLE WITH HANDICAP	
Mike Dent	281
Harold Wyzansky	271
Helen Catto	257

B DIVISION—Goofers	
Al Knobloch (c)	
Carl Frey	
Leo Markushewski	
Eddie Fields	
Lorraine Reidinger	
Anne Hoyt	
Carol Calkins	
HIGH AVERAGE	
Al Knocloch	177
Lorraine Reidinger	155
HIGH SERIES	
Al Knobloch	590
Patti Aspinall	533
HIGH SERIES WITH HANDICAP	
Dick Coughlan	679
Barb Dilemmo	713
HIGH SINGLE	
Jack Eyth	235
Eileen Cunnane	204
HIGH SINGLE WITH HANDICAP	
George Delisi	267
Barb Dilemmo	279
Kathy Barnes	259

A lesson in sign



HOW

Place the curved hands back to back with fingers pointing down; turn hands in this position until fingers point up.

ARE

Place the tip of the index finger at the mouth; move it forward, still upright.

YOU

Point the index finger out. For the plural, point the index finger out and move from left to right.

I

The "I" hand is placed at the chest.

AM

Place the tip of the index finger at the mouth; move it forward, still upright.

FINE

Place the thumb of the "FIVE" hand at the chest, palm facing left, and move the hands slightly up and forward.

Usage: a *fine* man.
feeling *fine,* thank you.

Technical Highlights

Continued from page 5

Missile Range Facility. Preliminary results indicate good correlation of the data with a priori maps and no interference with platform operations or with subsystems within which the geomagnetic equipment was integrated.

The Reconnaissance/Surveillance Branch successfully demonstrated the feasibility of near real-time tactical imagery transmission via SATCOM using a low gain antenna at Fleet location in Norfolk, VA.

As the lead laboratory for the Night Targeting System (NTS) infrared sensor system, the Reconnaissance/Surveillance branch provided technical consultation for NAVAIR at the Critical Design Review held in Israel.

AH-1W NTS is a joint U.S. Marine Corps/Israel program to develop and integrate a night attack capability for the AH-1W helicopter.

At the request of the Defense Advanced Research Project Agency (DARPA), Center personnel attended a review of the DARPA project on Intelligent Processing of Intermetallics by Hot Isostatic Pressing. DARPA has requested that NADC's Advanced Metallic and Ceramic Materials Branch be the agent for this program. In addition to being the agent, DARPA has requested that we do in-house research in support of this peoject in the areas of sensor technology and hot isostatic pressing

The Escape Systems Branch completed ejection tower testing on the Oxygen and Blower Hose Quick Disconnect Assemblies for the Air Force's Aircrew Eye Respiratory Protection System. Six, 14G shots using the 5th and 95th percentile Hybrid III dummies were conducted to evaluate the safe disconnect and reaction forces of the disconnect assemblies during dynamic ejection conditions. The F-16 tested configuration resulted in no failure of the disconnect function and no undesirable hose routing or hang-ups with the Tactical Aircrew/Eye Respiratory System (TAERS) system.

Decoy fools experts

Continued from page 1

concept definition phase of the program. The program became highly visible at the Secretary of Defense level and in the joint-service community and as a result, Phase II of the program (awarded in September 1989) has been modified to incorporate Air Force and Army requirements.

R. MICHI 8132

NADC Reflector Warminster

Volume 35 Number 2 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. February 1990

In This Issue:

Sawyer named NADC Sailor of the Year

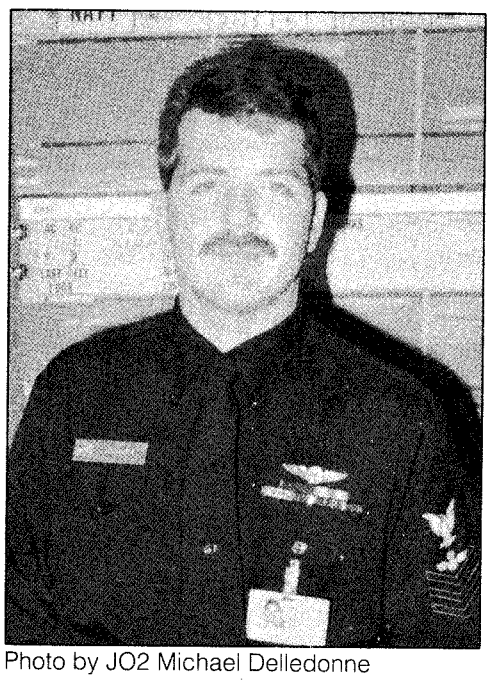


Photo by JO2 Michael Delledonne

AO1 Kurtis Sawyer
Sailor of the Year

By JO2 Michael Delledonne

To be nominated for Sailor of the Year, an individual needs not only to do his job well, but must have that intangible "that something extra" . . . the little things that make the big difference. Winning the award says that person is truly exceptional at what he does. AO1 Kurtis Sawyer showed all these special qualities by being named the Center's Sailor of the Year for 1989. "It's a great honor being selected as Sailor of the Year," said Sawyer who has been stationed here for more than two years. "There are so many quality people here who could have just as easily won. That's why it means so much."

A native of Piqua, Ohio, Sawyer works in Maintenance Control. "Basically we are the brain-center of the department," he said. "We direct what needs to be done and then give those jobs priorities. We also correct any discrepancies with the planes and make sure they are ready for their crews when the time comes to fly."

LT Fred Martin, Sawyer's Division Officer, said Sawyer was an excellent choice. "He certainly deserves to be Sailor of the Year, as he epitomizes the well-rounded sailor," he said. "He is a top notch performer, professional, intelligent and a leader among his peers."

Center Commander, Captain Curtis J. Winters, noted Sawyer's professional achievement in the superior performance of duties while assigned to

Continued on page 4

Markushewski merits achievement award

By Mary Ann Brett

Michael L. Markushewski of the Life Support Engineering Division, Air Vehicle and Crew Systems Technology Department (AVCSTD), recently received the Survival and Flight Equipment (SAFE) Association's East Coast Chapter Daniel S. McCauley Junior Professional Achievement Award.

This award, named for the deceased Daniel S. McCauley, a former NADC employee and SAFE member, is presented annually to the under-30-years-of-age member who has made significant contributions in survival and flight equipment.

Chosen from among ten international nominations, Markushewski was recognized for leading efforts which resulted in successfully completing qualification testing necessary for a production decision on a new Seat Survival Kit design for the GRU-7/A Ejection Seat used in A-6 and F-14 aircraft.

According to Dr. Donald McErlean, Head of AVCSTD, "In answer to Fleet F/A-18 pilots who had experienced several burns from oxygen/communication hose failures, Markushewski established new performance and evaluation criteria and conducted a test program needed to quality a new combination oxygen delivery/communications hose design for the F/A-18 aircraft ejection seat."

Markushewski also received an On-The-Spot-Award for these efforts. During an AVCSTD presentation, McErlean cited him for displaying ". . . a great deal of energy and imagination." He also said, "You are highly regarded as an outstanding performer, a pace setter, an example for your peers and a future leader within the life support community."

Markushewski, who has worked at NADC for nearly five years, has a BS in Mechanical Engineering from Spring Garden College in Philadelphia.

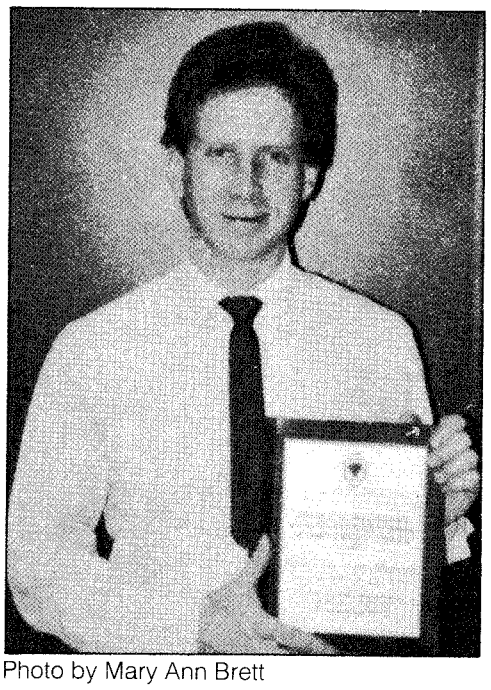


Photo by Mary Ann Brett

Michael Markushewski with SAFE Junior Professional Achievement Award

NADC coolant could save millions $

By Mary Ann Brett

Al Conte and Neal Rebuck of the Aerospace Materials Division have been successful in developing a new Avionics and Environmental Control System coolant which is chemically more stable and much less costly than the silicate ester fluid currently being used.

Conte, a research chemist in the Surface Interaction Research Group, explained that when the existing silicate ester fluid comes in contact with moisture it decomposes and separates into substances we might recognize as alcohol and sand. "Sand and alcohol might be fine at the beach," he said, "but they sure don't belong in your expensive weapons systems. The alcohol increases the danger of fire since it lowers the flash point and the sand clogs up the works."

According to Rebuck, Team Leader of the Lubricants Section, since the new synthetic polyalphaolefin (PAO) fluid is more stable and less likely to decompose and separate in the dielectric (high voltage) environment, the need to do periodic maintenance and filtration on the system/fluid with expensive ground servicing equipment may be eliminated.

The reduced maintenance costs plus the significant reduction in the cost of the PAO fluid (from $60-$100 per gallon for the silicate ester fluid down to $10-$12 per gallon for the PAO fluid) would result in a multi-million dollar savings.

The new coolant has performed successfully in the F/A-18 "Hornet," P-3 "Orion" and other DoD aircraft. Additional Navy tests are planned for the F-14 "Tomcat" as well as Air Force tests in the B-1 Bomber.

DeSimone named SAFE president-elect

By Mary Ann Brett

David DeSimone of the Air Vehicle and Crew Systems Technology Department was elected by a large margin to the office of President of the Safety and Flight Equipment (SAFE) Association. SAFE is an international group of government and industry organizations including England, France, Canada, Japan, and all US major airframers and subsystem suppliers involved with aviation crew systems.

DeSimone has been active in SAFE as East Coast Chapter President — two terms, National Chapters Chairperson, two terms, National Vice President and now, President elect to take office in November 1990.

Beginning his Navy career as a student trainee (GS-3) at the Philadelphia Navy Yard Crew

Continued on page 4

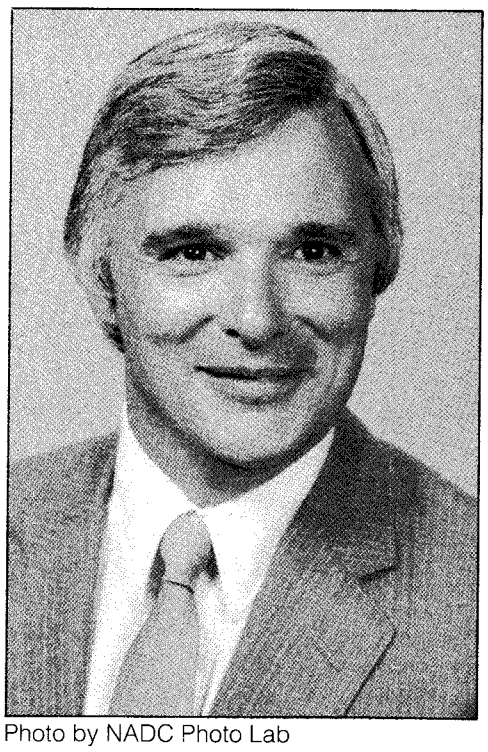
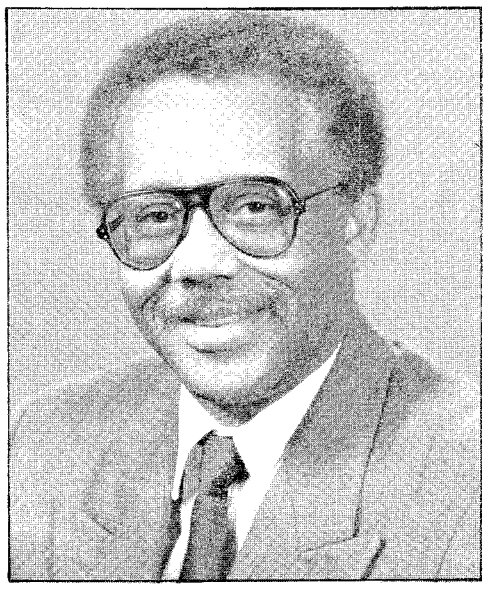


Photo by NADC Photo Lab

David DeSimone

Command Corner

Captain Curtis Winters
Center Commander



Guy Dilworth
Technical Director

Command Corner

To all hands:

NADC's THRUST

The Naval Air Development Center throughout its history has made numerous significant contributions to the capability of the U.S. Navy and to the advancement of the state-of-the-art of science, technology and systems engineering. As the Naval Air Development Center moves into the future, it will be guided by the following commitments and goals:

STRATEGIC GOALS

This Center, as a priority, will enhance its Airborne ASW RDT&E strength and overall position in the ASW community.

This Center will enhance its Tactical Air Warfare RDT&E strengths and overall position in the tactical air warfare community.

This Center will continue development of its expertise in aircraft and software engineering.

This Center will enhance its technology base function by further developing an environment that supports aggressive, high-risk, high pay-off research, exploratory development, and advance technology demonstrations.

This Center will further strengthen our RDT&E capability and support of the Navy's world-wide navigation systems.

This Center will strengthen our capability in warfare analysis, including battle group, and force level system architecture and engineering.

COMMITMENTS

We are committed to the execution of our mission which is to be the Navy's principal Research, Development, Test and Evaluation Center for all Navy aircraft, aircraft systems, airborne ASW, and all Navy navigation.

We are committed to a management and work philosophy of continuing improvements in every facet of our work and our Center.

We are committed to directly serving and supporting the fleet.

We are committed to working together as a team through the process of participatory management.

We recognize that all NAVAIR-DEVCEN employees are highly valued and we are committed to their continued growth.

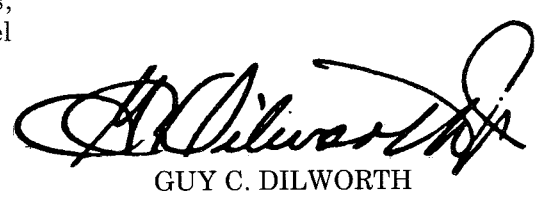
We are committed to creating and maintaining an environment to allow each individual to make maximum contributions to the mission of the Center.

We are committed to winning and accepting assignments that offer significant enhancements in fleet capability.

We are committed to seeking assignments within our mission area that offer our scientists and engineers challenging "hands-on" work.

We are committed to delivering quality products, serving our sponsors, and to conducting our business in a responsible, ethical, and professional manner.

We are committed to a responsible "can-do" attitude with regard to carrying out our mission and the execution of our assignments.



GUY C. DILWORTH
Technical Director

C.J. WINTERS
Commander

Photo by NADC Photo Lab

Kostmayer interested in new construction —

CAPT Curtis J. Winters, Center Commander, displays a model of the proposed Aircraft Technology Laboratory to Congressman Peter Kostmayer. The Congressman, who visited the Center in December, has expressed a particular interest in the funding and construction schedule for this new laboratory. During his visit, Kostmayer also spoke to Center employees.

Letter to the Editor

Where does all the money go?

Dear Editor:

In the past, I never quite knew how my contribution to Welfare & Recreation was used. Due to a recent illness my mother was in need of a wheelchair. The chair was provided by Ervin Rothermel of W&R the same day I requested it, no questions asked. He also made it known that besides wheelchairs, the W&R provides canes, walkers and other items needed by injured employees and/or relatives of NADC civil service personnel. Rothermel also noted that contributions are directly used for the purchase of new equipment. I strongly urge everyone to contribute to W&R.

Bob Greenblatt, Code 051

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NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA

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Public Affairs Officer ..... **James S. Kingston**
Editor ..... **Mary Ann Brett**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Gillespie gets department achievement award

Photo by NADC Photo Lab

George Gillespie (right) accepts plaque and congratulations from department head Dr. Donald McErlean.

By Mary Ann Brett

George Gillespie of the Life Support Engineering Division was selected for this year's Air Vehicle and Crew Systems Technology Department (AVCSTD) Scientific and Engineering Award. This award was established in 1987 by Dr. Donald McErlean, AVCSTD Department head, to recognize the outstanding technical accomplishments of scientists and engineers within the department. The award is based on peer review of accomplishments within the past two fiscal years.

Gillespie is credited with the development and Fleet introduction of the Helicopter Emergency Egress Device HEED.

The HEED Program, originally without a sponsor, is now one of the most visible programs and one of the most significant to enhancing helicopter aircrew survival. To date the HEED is directly responsible for saving 12 USN/USMC lives. The Naval Safety Center has certified this after reviewing the incident reports. Since HEED was introduced, there has not been one drowning in a survivable crash. Gillespie is responsible for the establishment of this program in an environment that was slow to acknowledge the need for such a program.

In lives, there are 12 helo aircrew flying now that would not have survived. This translates into a monetary savings of about $14 million. The morale of the Fleet has significantly improved due to the increased survivability, and the reputation of NADC and the Crash Safety and Survivability Branch has been significantly enhanced.

"There's always room for improvement," according to Gillespie. Efforts on this program will continue to strive for size and weight reductions even though the HEED has become a standard issue item to Navy and Marine helicopter crews.

Gillespie began work at NADC in 1973. He has a B.A. in Mathematics from LaSalle University.

Center gets new mission statement

By Jim Kingston

What the Naval Air Development Center does is generally defined in broad terms by our mission statement. For years, now, the official statement for NADC has been:

> "To be the principal Navy Research, Development, Test, and Evaluation Center for Naval aircraft systems, less aircraft-launched weapons systems."

However, our mission has long exceeded that narrow definition and a new, more definitive mission statement has been requested.

Effective 12 January, NADC's official mission is:

"To be the principal Navy Research, Development, Test, and Evaluation Center for Aircraft, airborne anti-submarine warfare, aircraft systems less aircraft-launched weapons systems, and surface ship, submarine, and aircraft navigation."

This new statement identifies us as being foremost in air ASW, introducing the word "warfare" to our official mission, and brings in, for the first time, our preeminence in navigation systems for all Navy ships, aircraft, and submarines.

In addition to NADC, the Naval Weapons Center (NWC), the Naval Underwater Systems Center (NUSC), and Naval Surface Warfare Center (NSWC) also have revised statements which are more descriptive of their current missions.

NADC nominated for excellence award

By Jim Kingston

SPAWAR Commander, Rear Admiral John C. Weaver, recently put his signature to a letter nominating the Naval Air Development Center for the Commander-in-Chief's Installation Excellence Award for 1989. In his letter, Admiral Weaver said, "The Naval Air Development Center was selected for marked success in mission accomplishment, for its record of award competitions, involvement in community affairs, and broad-based efforts to promote an improved quality of life." These qualifications, he felt, were most in keeping with the intent of the award.

The Commander-in-Chief's Installation Excellence Award was established by the President to recognize the outstanding efforts of the people within each service who operate and maintain U.S. Military Installations. The award focuses on identifying an installation in which the command has done the best job with its resources to support its mission, concentrating on imaginative and innovative management actions that have increased the productivity of its work force and enhanced the quality of life of its people.

A single award is made annually to each of the services. All Navy shore establishments are eligible for this award. Selection of winners will take place later this year.

NADC escapes base closing axe — again

By Jim Kingston

All of the Center's top management and a lot of rank-and-file, as well, were anxiously awaiting the official word from Secretary of Defense Dick Cheney on the latest round of base closings. Based on recent past experience, many of us had good reason to be on edge not knowing if NADC would be on the list. Unofficially, we had heard we would not be, but we needed the reassurance of the DoD decision.

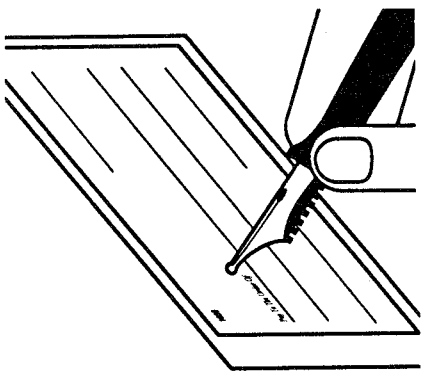
Shortly after Noon on Monday, 29 January, we stood over a fax machine watching a copy of the news release arrive from the office of the Chief of Information (CHINFO). Scanning the content, we found to our satisfaction that, indeed, NADC was not among those DoD facilities considered for closing or realignment. In fact, there were no R&D facilities on the list. However, our fellow Navy facility, the Philadelphia Naval Station and Naval Shipyard, was not so fortunate.

In all, 36 domestic military bases were considered for closing and another 20 for realignment or reduction. The facilities were selected by the various service secretaries and submitted to Cheney who published them without comment or making any changes. All services are well represented and no one service bore the brunt of the cutback.

Who Will Back This Check?

In the year 2006, a single year of college education could cost as much as $37,000. Will your checkbook be able to stand such a burden? Start your child's education fund now by investing regularly through the U.S. Savings Bonds payroll savings plan. Ask your bond representative about the advantages of Savings Bonds, particularly the benefits of the new Education Bond Program applicable to bonds purchased after January 1, 1990*.

*Specific requirements on bond registration, purchase, use and income levels apply.



U.S. SAVINGS BONDS

THE GREAT AMERICAN INVESTMENT

Message From the Secretary of Defense For Black History Month 1990

I am pleased to welcome all who have joined us today to celebrate the very special contributions of Black Americans to our Nation's defense. The theme of this year's Black History Month celebration is "The Father of Black History, Carter G. Woodson: A Living Legacy."

Throughout 1990 and in the years to come, we must strive to educate the young as well as their seniors, by relating the true experiences of those Black men and women who have given and are still giving of themselves to help guarantee our continued American independence and the sustenance of freedom.

Black Americans in the Department of Defense continue to lead by example, sustaining by effort and performance the freedom and security of this Nation.

Dick Cheney

Dick Cheney
Secretary of Defense

Temple U prof speaks on cultural diversity

Photo by NADC Photo Lab

Dr. Kariamu Welsh-Asante speaks in Center Auditorium.

Professor Kariamu Welsh-Asante, an instructor at Temple University visited the Center on February 1, in honor of Black History Month. Her comments highlighted the need to recognize and accept cultural diversity.

Welsh-Asante was the first of three speakers scheduled to address employees in the Center auditorium during the month-long celebration.

Sawyer: Sailor of the Year

Continued from page 1

the Aircraft Maintenance Department's Ordnance Branch. "As the Ordnance Branch Supervisor, the Center's Range Master and Small Arms Instructor, Petty Officer Sawyer consistently performed his duties in an exemplary and highly professional manner," he said. "Sawyer managed and guided the Ordnance Branch through two difficult inspections and through his diligent efforts returned outstanding results in both cases. He developed a comprehensive training program in which the entire Ordnance Workcenter passed the Maintenance Training Improvement Program (MTIP) with a 91.3% average. Superb leadership and aggressive training skills directly contributed to the Center achieving its research and development goals. The award is very well deserved."

"I think the Center offers a great opportunity," said Sawyer. "They really go out of their way to give you every chance to further your education and to help let you grow professionally. When you leave here you're ready to handle the Fleet."

Photo by NADC Photo Lab

M-M-M GOOD HOME COOKIN'—***Ethnic dishes were free for the tasting as a highlight of Black History Month.***

DeSimone: SAFE President

Continued from page 1

Equipment Laboratory in 1959, DeSimone is presently the Director of the Crew Systems Program Office managing $35 million of the Center's programs. He is a recognized international technical expert in aviation crew systems and holds several patents in his field. He is also President of the Center's Navy Civilian Managers Association and a member of the Aerospace Medical Association.

"After doing the same type of work for thirty years," said DeSimone with a smile, "you're bound to get elected to something, since everybody else is either retired or otherwise amongst the departed."

"I must say," he continued, "I wouldn't trade my years with the government. Where else could I have gotten such breadth of experience, training and responsibility from the outset, and the opportunity to meet so many people in and out of government — even a Vice President of the United States." DeSimone was referring to the visit of then-Vice President George Bush's visit to NADC in the early 80's.

MARCH

NATIONAL NUTRITION MONTH

How Much Is Too Much?

Most nutrition authorities recommend that the U.S. population as a whole reduce daily consumption of fat. On the average, Americans eat about 40 percent of their total calories as fat. Many authorities have suggested it is best to limit fat to no more than 30 to 35 percent of total calories. Some authorities suggest limiting saturated fatty acids to about a third of total fat.

If you know how many calories are generally in your diet, look at the chart to the right for amounts of fat that equal 30 to 35 percent of calories. If you're not sure of your typical caloric intake, here's a rough guide: 2,000 calories is the average suggested for women age 23 to 50 and 2,700 calories is the average for men. Whether these levels are right for you depends on your age, body size, and level of activity. If, for example, you eat 2,000 calories a day, 67 to 78 grams of fat represent 30 to 35 percent of your total calories.

In a diet with daily calories of—	The grams of fat shown provide 30% to 35% of calories (grams)
1,500	50-58
2,000	67-78
2,500	83-97
3,000	100-117

Who they are; What they do

By JO2 Michael Delledonne

After graduating from high school, YN3 Mark Hisert realized there were not many job opportunities. "I guess I joined why most people joined," said the 23-year-old from Amsterdam, N.Y. "There were no jobs to be found anywhere around my home. I wanted to travel and see the world, so I stopped by the Navy recruiter's office, scanned the different ratings and decided to become a Yeoman."

After attending boot camp in Great Lakes, IL., and a tour aboard USS KISKA AE-35, Hisert reported to the Center as a Yeoman working in the Command Administration office. Tasked with typing command correspondence, evaluations, muster reports and the Plan-of-the-Day, Hisert is constantly at work. "It doesn't sound like much, but it keeps me very busy," noted Hisert.

A five-year Navy veteran who has been stationed here for one year, Hisert's biggest test was adjusting to shore duty after being at sea. "This is very different from the ship I was on," he said. "It's like night and day. On the ship you have no choice in anything you do. You're told when to work, how long; and, when your at sea, there can be some long hours. Here, you can have input and have it mean something. You always know when you're coming to and leaving from work. That makes it nice because you're always on a regular schedule."

Photo by JO2 Michael Delledone
YN3 Mark Hisert

Sailor and Bluejacket of fourth quarter named

By JO2 Michael Delledonne

Zarzaca named SOQ

When someone is nominated five times for Sailor of the Quarter, you can be sure he or she is really deserving of the title. Obviously, an outstanding impression has been made on that person's supervisors about his performance. The last nomination was the charm for AD2 Joseph Zarzaca as he was named the Center's Sailor of the Quarter for the fourth quarter 1989. "I was shocked and very happy," said Zarzaca. "I was hoping this would be the time."

The 26-year-old from Burlington County, NJ, works in Line Division. "We take care of airplane maintenance, towing and the equipment that goes along with it," said Zarzaca.

A seven-year Navy veteran, Zarzaca is also a crew chief on the CH-53 helicopter and a member of the Center's Auxillary Security Force. "You can do a lot here," he said. "You're involved with so much and work with so many different aviation specialties that you want to work hard."

Line Division Officer, LT Barry Sherrod, noted the award was overdue. "Petty Officer Zarzaca has been an outstanding performer since being attached to Line Division," he said. "Up until now, his accomplishments haven't been formally recognized, but I think this is a great opportunity for the Center to really single out a guy who has done exceptionally well in the Navy and here on Center."

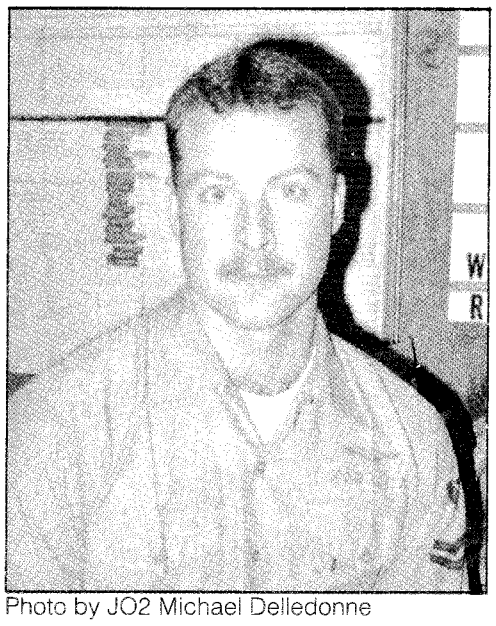


Photo by JO2 Michael Delledonne
AD2 Joseph Zarzaca
Sailor of the Quarter

Citing the Center as unique, Zarzaca says he enjoys what he does. "In the Fleet you do the same thing all the time because that's your main mission. That's what makes the Center special, you don't fall into the same day to day grind as you would in the Fleet."

Propst chosen Bluejacket

AT3 Scott Propst was selected as NADC's Bluejacket of the Quarter, fourth quarter, 1989. A Cumberland, MD. native, the 20-year-old sailor was pleased with his selection. "I thought it was really nice," said Propst. "There are a lot of good people here on Center. Being able to win the award is really great."

Photo by JO2 Michael Delledone
AT3 Scott Propst
Bluejacket of the Quarter

A Navy veteran of more than two years, Propst was a little surprised when learning of his nomination. "I was excited," he said. "It is always nice to be recognized for your work."

Discussing his work, Propst, said "I like my job tremendously," he said. "You get to work on a lot of different equipment all the time. Even though the P-3 aircraft is all I work on, each one is different and that's what makes the job challenging."

Propst, who has just received an ROTC scholarship, plans to leave the Center in August of this year. "I want to attend George Washington University," he said. "I would like to major in Electrical Engineering, but I know it's going to be tough. I'm really looking forward to going to school. I can't wait to get started."

Patents pending

Inventions, many with commercial potential, are continually being developed at NADC. Patent applications for three such inventions have been submitted recently. They are:

"Optical Fiber Sensor for Measuring Physical Properties of Liquids" by Lloyd Bobb, Barbara White and Jon Davis, Navy Case No. 70821. This relates to a device which uses the interference of light waves to measure the physical properties of liquids.

"Optical Fiber Refractometer" by Lloyd Bobb and Howard Krumboltz, Navy Case No. 70053. This relates to an optical fiber refractometer in which light transmission through an immersed fiber indicates refractive index.

"High Gloss Corrosion-Resistant Coatings" by Charles Hegedus, Donald Hirst, Anthony Eng, and William Green, Navy Case No. 71809. This relates to corrosion resisting coatings which can be applied directly on to various surfaces particularly metal and polymeric composite substrates as a single topcoat.

More information on these and other patents/applications can be obtained from the Patent Counsel on ext. 3000.

Technical Highlights

Our TSDF has been designated by the F-14 Program Manager (PMA-241) as the verification facility for all display updates to the F-14D. The first major effort will be the F-14D HUD/MFD reformat effort. This effort will be coordinated with the Navy Test Team, the Pacific Missile Test Center, and VX-4/OPTEVFOR.

CNTD delivered the Gravity Cartridge System, designed and developed at NADC, to the Naval Oceanographic Office and successfully demonstrated the capability to produce gravity cartridge tapes for direct fleet use. A similar system will be delivered to the United Kingdom Hydrographic Office in late FY-90.

The Navy's class II JTIDS terminal, designed and developed at NADC was successfully tested during its two-hour maiden flight aboard an E2C aircraft.

The Advance Processor Branch, Signal Processor/Computer System Technology Division has recently completed the System Requirements Specification for the AN/UYS-2 signal processor, configured for use on the SH-60B and SH-60F helicopters as part of the ALFS (Advanced Low Frequency Sonar System).

The ALFS system consists of a suite of sonobouys and environmental sensors (as currently employed on the P-3 Aircraft) and an advanced acoustic dipping sonar which interfaces to the computer via a cable and winch control system. The AN/UYS-2 signal processor will provide signal processing and sonar displays on-board both the CV-HELO and LAMPS helicopters.

A notice of patent allowability was received for the invention of the "Multi-Channel Acoustic Simulator" by Marc Dilemmo of the Communication Navigation Technology Directorate (CNTD).

Drug testing preparations proceed

By Mary Ann Brett

The Department of the Navy, as well as NADC, considers the civilian drug testing program and a drug-free workplace essential to the operational readiness of Naval forces and an important element in support of national defense. So much so, that even though drug testing of civilian federal employees has been stayed by an injunction of the US District Court in California, Navy officials are proceeding with other preparations for conducting the Navy's Drug-free Workplace Program.

Most recently at NADC, these preparations include supervisor/ manager training during January and February 1990. The training provides an orientation on the manner of testing, types of drugs for which tested, how and what laboratory facilities will be used and what administrative and disciplinary actions might be required resulting from non-cooperation or a positive test for illegal drug usage.

According to Robert Pomrink, NADC's Drug Program Coordinator, a condition for continued employment for all civilian employees is to refrain from the use of illegal drugs. The goal of this Drug Program is to deter employees from using illegal drugs and to rehabilitate those who are using them. It is not designed to be punative. All employees were informed of the program and its basic provisions through a letter sent them in September 1988. Newer employees were issued the letter when they started work with the Center. Major components of the program include notice requirements; supervisory training; employee education; Civilian Employee Assistance Program; Safe Harbor; drug testing; and program safeguards for the employee.

While all employees are subject to testing under certain conditions, there are approximately 575 Testing Designated Positions (TDP's) on Center. The people in these positions will receive a 30-day individual notice that they may be called for a random drug test. Approximately fifty percent of these employees will be tested annually on a random basis.

It is important to remember that employees who are users of illegal drugs may apply for "Safe Harbor" by voluntarily identifying themselves to their supervisors as users of an illegal drug and requesting counselling and rehabilitation assistance, before being identified through other means such as random testing. Such employees will not be subject to discipline for prior drug use.

Smoking speed: the dangers

By American Forces Information Service

"Speed kills."

During the late 1960s, drug-clinic workers spread that message about methamphetamines. Now the drug is making a comeback, and it still kills.

Peter Brock, director of alcoholism and mental health programs, Office of Assistant Secretary of Defense (Health Affairs), said DoD is concerned about smokable methamphetamine crystals, or "ice."

DoD is not the only organization concerned that ice will become a major problem in the United States. Federal and state drug abuse prevention officials are also trying to prevent the drug from becoming a problem by educating the public about its dangers.

Testifying before the House Select Committee on Narcotics and Drug Abuse, Dr. Jerome Jaffe, senior science adviser at the National Institute on Drug Abuse, said, "Ice may pose even more of a social danger than crack."

And a state drug abuse prevention chief has been telling audiences that ice makes PCP, a drug known for causing users to become extremely violent, "look like a Sunday picnic."

Brock said DoD is sending warnings to military emergency rooms about this and other dangers of ice. Ice can cause some people to become extremely violent. Like PCP, ice sometimes gives users inordinate strength for a short period of time.

While high on ice, users become insensitive to pain. An overdose can result in convulsion and ruptured blood vessels in the brain, leading to brain damage or death. The drug also increases body temperature. This, combined with the decreased ability to use good judgement, puts ice users at risk of death from heat stroke if they work outside on warm days.

Most ice users range in age from late teens to early 30s, but users can be as young as 10 and as old as 60. Ice users come from all social classes. Slightly more women than men are using the drug, according to the National Institute on Drug Abuse.

Hawaiian law enforcement and public health officials asked the institute to investigate an epidemic of methamphetamine smoking in that state. According to its report, some users became addicted after their first use. They smoked ice continuously for several days, stopping only for one or two days to sleep.

Because of the anxiety created by the drug, addicts typically use alcohol or other depressants to sleep, creating the potential for addiction to more than one drug at the same time.

Most users reported intense depression when they came down from an ice high, which led to a craving for more of the drug. Symptoms of regular ice use include rapid weight loss due to the increased use of energy and loss of appetite.

In addition, most people who smoke ice experience paranoia or intense feelings of being persecuted and pursued. Hallucinations and psychotic breakdowns are common and in some cases have been reported after the first use. In fact, researchers believe that sooner or later, anyone who uses the drug long enough will develop a psychosis resembling paranoid schizophrenia.

Ensure a future for Edison: conserve energy

By Michael Blank, P.E.

"We sat and looked, and the lamp continued to burn, and the longer it burned, the more fascinated we were," said Thomas A. Edison. During Edison's time, energy sources seemed to be both inexhaustible and expendable. Now, we address our concerns about Energy Savings, we have not only fully enjoyed the benefits of this noble experiment, and its implementation, but we must be fully aware about future Energy Savings and begin to explore every opportunity so that future generations may prosper from Edison's invention.

Winter is not over yet, and many homes, especially older ones, have leaky windows and doors that lose heat in the winter. In fact, on the average, air leaks accounts for 30 to 40 percent of the heat lost in non-weatherized homes. These leaks lead to high gas and electrical energy bills.

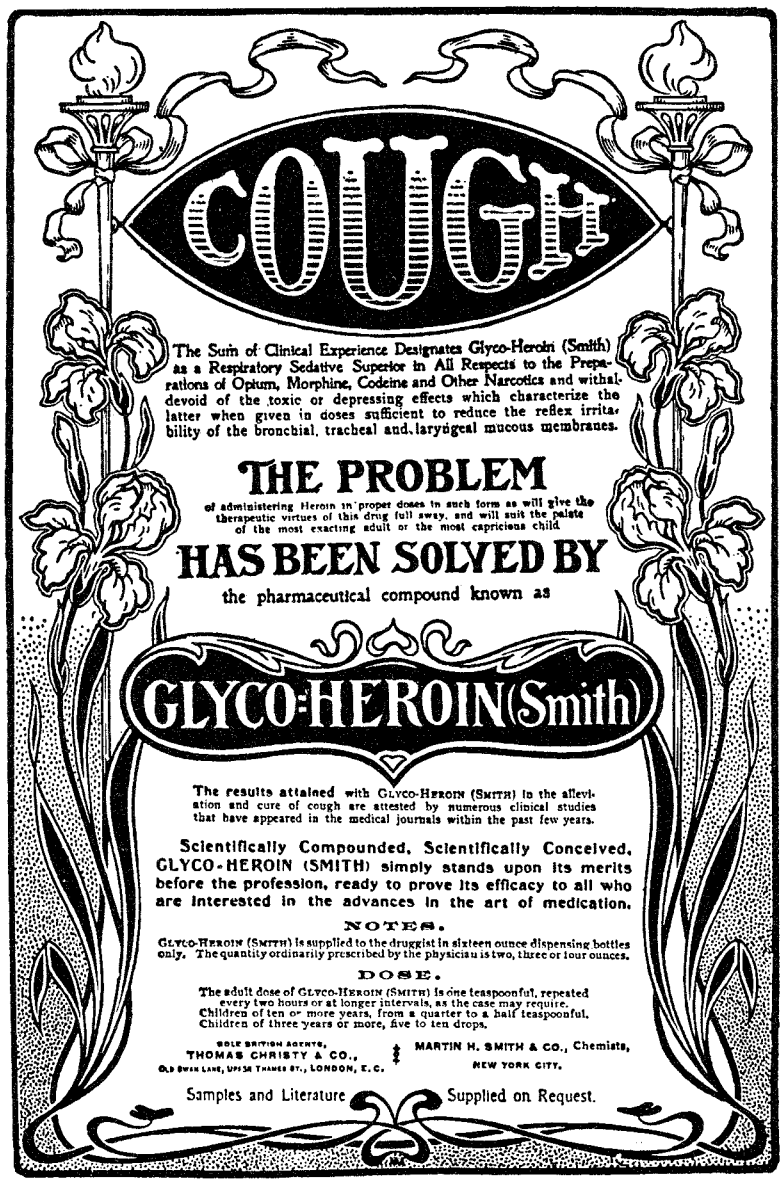
Light fixtures, electrical outlets and switches, and vents in the bathroom and kitchen can also leak air. The Best Defense is a Good Offense. You can easily combat these air leaks by sealing up cracks and gaps with caulking and weatherstripping. If you have already done so, you may need to check and replace it.

Caulking and weatherstripping are some of the most inexpensive, measures for air tightening a home. Caulk is a resilient or semi-liquid material that may be applied to the inside or outside of window frames or other openings. Weatherstripping is a narrow piece of metal, vinyl, rubber, felt, or foam that can easily fill gaps between the frames and the moving parts of windows and doors when they are closed.

Air leaks are not alone as energy eaters. Even though modern light bulbs are more efficient than older models you can increase their light output even more by dusting bulbs and fixtures frequently. Dirty bulbs actually absorb light and can give you up to 50 percent less illumination than clean ones. In addition it's more efficient to substitute one large bulb for two smaller ones wherever you can. For example, one 100 watt bulb produces more light while using less energy than two 60-watt bulbs.

Don't forget to apply the basic GOLDEN ENERGY RULE:

Turn off the switches to computers, appliances, lights, motors and equipment, whenever they are not in use.



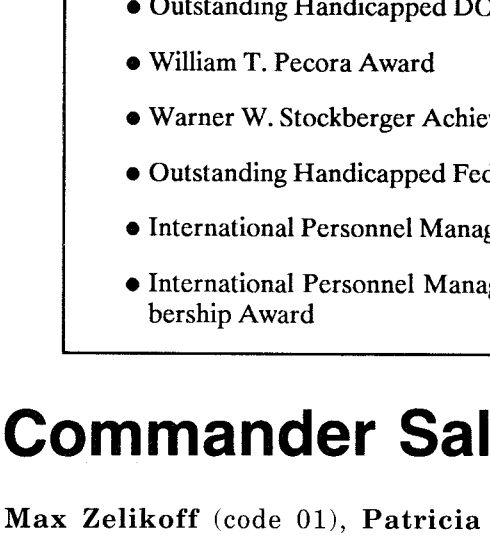
A 1903 advertisement touts the medicinal qualities ascribed to heroin when it was introduced.

VIEWPOINT

Question: What could be done to improve quality at NADC?

"I would like to see the proposed Mentor Program really happen. NADC, a small city in itself, is somewhat overwhelming to new employees. Having someone to filter questions makes transition easier, especially for trainees. Having a mentor at any period in your career is a plus for all who aspire to grow. Being a mentor is also growth. It's not so much improving the quality at NADC as it is putting the best quality of its people to use."

Carole Preston



Carole Preston
Code 70

Tom Leahy
Code 90

"I believe that by instituting a 9-day work week, employee morale would be positively affected. Benefits would be increased productivity, a better retention rate and a more desirable recruiting position for NADC."

Carlos Falcon

"One area is to let workers know that managers are addressing issues that workers believe are roadblocks to their jobs."

Tom Leahy

Carlos Falcon
Code 30

Joyce Shields
Code 10

"Definitely offer good clerical training for incoming recruits (including computer and basic correspondence training), in a training-operated pool atmosphere and not by starting from scratch in a department. This initial training will help build their confidence (not overwhelm them with frustration), since they will become familiar with the Center and its correspondence policies and procedures, as well as the operations within each department. This is a long-term endeavor but the payout would be positive. I have had the benefit of this type of training and never had a negative thought regarding its end result."

Joyce Shields

And the nominees are...

There are nearly one hundred honorary and monetary awards available throughout each year for which NADC's outstanding employees might quality. 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 (all honorary) accepting nominations through April 1990 are:

- Outstanding Handicapped DON Employee of the Year Award
- William T. Pecora Award
- Warner W. Stockberger Achievement Award
- Outstanding Handicapped Federal Employees of the Year Award
- International Personnel Managers Association Award for Excellence
- International Personnel Managers Association Honorary Life Membership Award

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

Commander Salutes

Max Zelikoff (code 01), **Patricia Walters-Caraluzzo, Philip Horne, Ellen Garofalo** (code 02), **Margaret Vigelis** (code 04), **Janice Schmidt** (code 10), **Rose Ann Petro,** (code 20), **Robert Seltzer** (code 60), **Ervin Rothermel, Steven Barrell** (code 80) **Rebecca Carr, Eugene Byers, Mark Breidenthall** (code 90): For time spent in helping to promote goodwill towards the children of Christ's and Bethanna Homes.

Jack Savage (code 50): For technical expertise and professionalism in support of the ASW Training Group.

John Andujar, David Davis, Michael Lanier (code 50): For fine contributions to the Non-Cooperative Target Recognition capability test on the AEGIS Cruiser.

John DeLuccia (code 60): For a presentation at the Technology Transfer Conference in Philadelphia.

AD3 **Dennis Katulis** (code): For outstanding performance in the repair of Devil 110 at Naval Air Station, Fallon, N.Y.

Patricia Oberndorf (code 70): For significant contribution at the Tri-Ada 89 Conference.

William Walker (code 70): For co-chairing the Lightning Design, Test and Protection Technology Workshop at the Naval Weapons Center, China Lake, California.

John Perazza Jr. (code 70): For outstanding performance as a member of the Aircraft Battle Damage Repair Program Development Options Paper committee for the Naval Air Systems Command.

LT **Richard Hamilton** (code 60): For short notice response to the Naval Aerospace Medical Institute's request for training their Residents in aerospace medicine.

Dr. Vinod Agarwala and **Steven Spadafora** (code 60): For presentations to the 1989 Liberty Bell Corrosion Course.

Dr. John DeLuccia: For furthering the Center's professional reputation with the Federal Aviation Administration.

Dominick Siana (code 10): For exemplary performance as Project Engineer for the Air Common Acoustic Processor Program in support of the Naval Air Systems Command.

Major Graeme Ogilvie, CFLO, **Danny Chung, Ralph Collins** (code 10), **James Koch** (code 60): For tours and briefings to the Canadian Aurora Software Development Unit during their visit to NADC.

Dominic Siano, Joseph Caro, Ralph Collins, Barry Knouse (code 10): For support of the Advanced Programs Division for the Space and Naval Warfare Systems Command.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Mixed League Bowling news

By Tom Reiter

Plans are underway for this year's banquet which will again be held at the Warrington Country Club on Almshouse Road. All of our bowlers' summer social calendars should be kept open on Friday night, June 8th, for our annual celebration.

Thunderbird Lanes has donated Tippy Tommy Mugs for us to award as high game prizes. Winners who have rolled games above 214 for men and over 180 for women include:

267 Mike Dent
256 Wes Gleason
245 Rick Eppright
235 Jack Eyth
234 Al Knoboch
234 Jack Horning
231 Dave Ader
230 Steve Jerdan
229 Mike D'Aulerio
229 Harold Wysansky
226 Joe Emperly
226 Jack Figgles
224 Nick Doto
224 George Delisi
224 Jim Campana
223 Jeff Irvin
222 Al Sheppard
221 Tom Reiter
221 John Bowes
221 Nick Hodorovich
221 Dick Coughlan
220 Ernie Wykes
219 Dave Oliver
217 Dave Gumkowski
216 Kevin Ryan
215 Leo Markushewski
214 Neal Polin
214 Joe Catto
214 Art Duhaime
214 Jim Palmer
229 Lorrie Dunn
221 Linda Stickney
219 Gina Virga
216 Granny Tierney
208 Kathy Barnes
204 Barb Dilemmo
204 Eilen Cunnane
202 Carla Mackey
201 Miriam Lentz
200 Eileen Dobrowolski
200 Claire Bayer
200 Sharon Robinson
200 Lorraine Reidinger
200 Barb Fleischut
199 Karen Thomas
196 Debbie Wood
195 Helen Catto
195 Elaine Granieri
193 Jacque Emperly
192 Lois Savage
192 Betty Beans
191 Mary Vaughn
189 Patti Aspinall
189 Lisa Sanelli
186 Donna Morgan
185 Carol Calkins
185 Sandy Weathers
185 Elsie Apple
182 Denise Eck
180 Karen Baker
180 Judy Jerdan

SECDEF speaks on changing climate

Manpower cuts, wilting budgets and readiness issues garnered most of Secretary of Defense Dick Cheney's attention in a recent interview with American Forces Information Service.

"We are clearly going to be taking down perhaps as much as 100,000 end-strength reduction total servicewide out of the 2.1 million (in the active-duty military)," said Cheney.

Cheney credited two factors — high quality, dedicated service members and a winning strategy — for pushing the Warsaw Pact member nations to reduce their military expenditures and offensive military posture. "The men and women in uniform today and those who have served in the past deserve a lot of credit" he said. "The defense capability of the United States has provided a shield behind which we've been able to develop our robust economies. Our society is based on freedom and democracy . . . it's the difference, the stark contrast between the failures of communism . . . vs. successes that we've seen in the West."

Cheney acknowledged that welcome changes such as *glasnost*, Soviet withdrawal from Afganistan and breakdown of the Berlin Wall have ushered in "a new era in international relations, a fundamental change in 40 years of Cold War to something new, as yet ill-defined."

But he cautioned against wholesale diversion of defense dollars to other parts of the economy. "It will be difficult . . . to keep some in Congress from wanting to run out and immediately cash the so-called 'peace dividend check' that everybody's talking about," he said. "There is no peace dividend there."

Whatever changes are made in the coming months and years should, he said, "be done in an orderly fashion." Ratcheting budgets back and forth "is not fair to our people, and it creates enormous added waste and cost in terms of how we operate our programs," said Cheney. "We can change our spending levels, we can reduce our spending requirements over time assuming the international climate continues to improve."

How does that improved climate translate into dollars? Do not look for real growth in the defense budget in the years ahead: Cheney said such a prospect appears extremely unlikely. "We've got to restructure our long-range plans to take into account the lower levels of funding than previously anticipated, he noted. The lowered funding level Congress has been providing DoD results from congressional perception that the Soviet threat has changed fundamentally in character in recent years, said Cheney.

As world tensions lessen, however, more and more military and DoD civilians fear budget cuts may put them out of work. Saying he hopes attrition and reduced recruiting will help "manage the process" the secretary did not rule out reductions-in-force to meet the shrinking budget. "My preference is to allow the services to make those kinds of choices because they know what their needs and requirements are," he said.

If more base closures become necessary, both oversees and stateside installations will likely be sent to the block, said Cheney. That could happen, especially if negotiations on conventional armed forces in Europe prove fruitful, he surmised.

"It's important that if we're going to reduce the size of our forces, we reduce the overhead . . . we close down bases we don't need. If we don't, . . . we'll . . . have less by way of resources to devote to maintaining the quality of life for our personnel or giving them the kind of equipment they need to do the job we ask them to do," Cheney said.

While change may appear the byword for the current status of affairs in the defense arena, some areas may see little or no change. "The Soviets, I don't believe, will ever give up their strategic capability," said Cheney. "That's the only reason they're a superpower. We'll need to maintain robust, modern strategic forces for the foreseeable future no matter what happens there.

"While we can be hopeful that Mr. (Mikhail) Gorbachev's stated intentions will ultimately be implemented as policy, we're still faced with the fact that their military capability is enormous, and it's still targeted against the United States," he said.

Calling NATO the "heart of the success of the last 40 years," Cheney said that the "U.S commitment to it . . . is not going to change. It shouldn't change. And now, at a time when there's some potential for instability in Eastern Europe and even the Soviet Union, I think NATO's even more important as a source of stability."

The need to "go anywhere, anytime to defend American lives and American interests" will continue as before, according to the secretary. "The size of the forces may change, the extent to which we emphasize a quick deployment or maybe U.S. deployment vs. forward basing . . . but there's no questions that the U.S is going to need

Secretary of Defense Richard Cheney

significant military capability as far a you can see in the future."

Talk of budget cuts might dampen some people's spirits, but there is room for optimism, said Cheney. Both Congress and the public realize, he said, that to remain a superpower the United States requires significant military capability. "The budget . . . will include a pay increase for both military and civilian personnel . . . There's a very bright future for those who want to make their career in the military or in civilian service associated with DoD."

Good ideas are worth money

Good ideas are worth money--both in short or long term savings to the Center and in cash awards to the suggestors. Seven such suggestions from across the Center were adopted to date during fiscal year 1990.

The suggestor, suggestion, and award are: **Lynn Matheos** (Code 04) for "Check Out Procedure for Military and Civilian Employees," $25; **Al Kaniss** (Code 05) for "Modify Visitor Badge," $25; **Dickson Alley** (Code 606) for "Disposal System for Uncured Graphite Materials," $100; **Linda Nagy** (Code 811) for "Brass Color Gravopoly to Replace Real Engraving Brass," $200; **John Richmond** (Code 83) for "Compressor Room Safety," $25; **Edward Linke** (Code 835) for "Fall Prevention Warning Signs," $25; **Peter Schecter** (Code 912) for "Resurfacing Hallway Floor of Bldg 134 to Minimize Safety Hazard," $50.

If you have a suggestion on where or how the Center can raise its standard of quality or save money, call Bettie Simpson-Lawrence, Code 031, ext. 3079.

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NADC Reflector

Volume 35 Number 3 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. March 1990

In This Issue:

NADC hosts First R&D exchange conference

Nearly 200 engineers and scientists from sixteen Naval labs and facilities attended the first SPAWAR R&D Exchange Conference held at NADC. The conference was held to strengthen the technology base and make more efficient use of unique Navy facilities and the Navy's best resource—its people. Dr. Asha Varma orchestrated the presentation of nine classified and unclassified sessions. Participants could opt to listen to more than 100 technical papers or attend any of seven tours to NADC facilities.

NADC session chairmen included Anthony Passamante, Dr. Mien Wann, Dr. Thomas Gabrielson, Dr. Bruce Steinberg, Robert Dechico, Dr. David Barrett, James McEachern, Anthony Vendetti, Joseph Cammarota, Dr. Barry Shender, Dr. Phillip Whitley, LCDR John Deaton, Ph.D., Dr. Norman Warner, Jonathan Kaufman, Thomas Zenobi, Dr. Vinod Agarwala, Stephen Spadafora, Dr. Robert Williams, Dr. Warren Herman, Dr. James Alper, Dr. Lloyd Bobb, Randy Sands, Dr. Thomas Donnellan and Dr. William Scott.

(see add'l photos page 7)

Photo by NADC Photo Lab

Dr. Asha Varma, exchange coordinator, addresses participants.

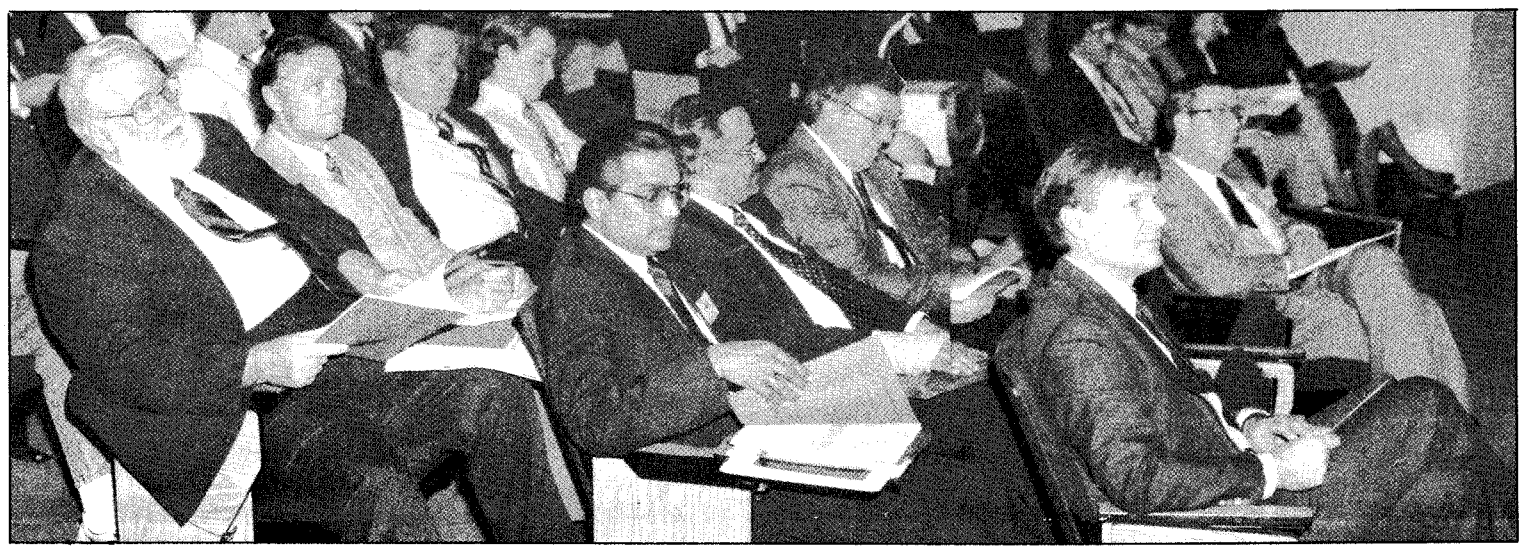


Photo by NADC Photo Lab

Left: Nearly 200 Navy attendees listened to technical presentations in the Center Auditorium.

Warminster wage tax passed, withholding not yet begun

By Jim Kingston

Although the one percent earned income (wage) tax was passed by Warminster Township over the heated and vocal objections of hundreds of residents and workers, implementation of the collection phase has not yet begun.

The new tax became effective March 1, 1990 and a commercial tax collection agency was appointed. However, putting the withholding mechanism into place is still in the development stage. Insofar as NADC is concerned, we must await direction from the Treasury Department before we may withhold this tax from civilian employee wages. Military pay is exempt from the tax.

In talking with Center, Township, and collection agency officials, we have learned that Warminster must establish a formal agreement with the Treasury Department authorizing the withholding, however, this process may take several months.

The major concern then becomes this: If, for example, the withholding order takes effect in June, will we be subject to a retroactive lump sum being taken out for the March to June period? Hopefully not! The Center's position in this scenario is to begin withholding on the date we are authorized to do so . . . but not to treat it retroactively. In our opinion, any taxes due for the March-June timeframe should be resolved at the end of the tax year when individuals would normally file a tax return.

As this 'taxing' situation develops, we will keep you completely informed.

March is
Women's History Month
see page 7

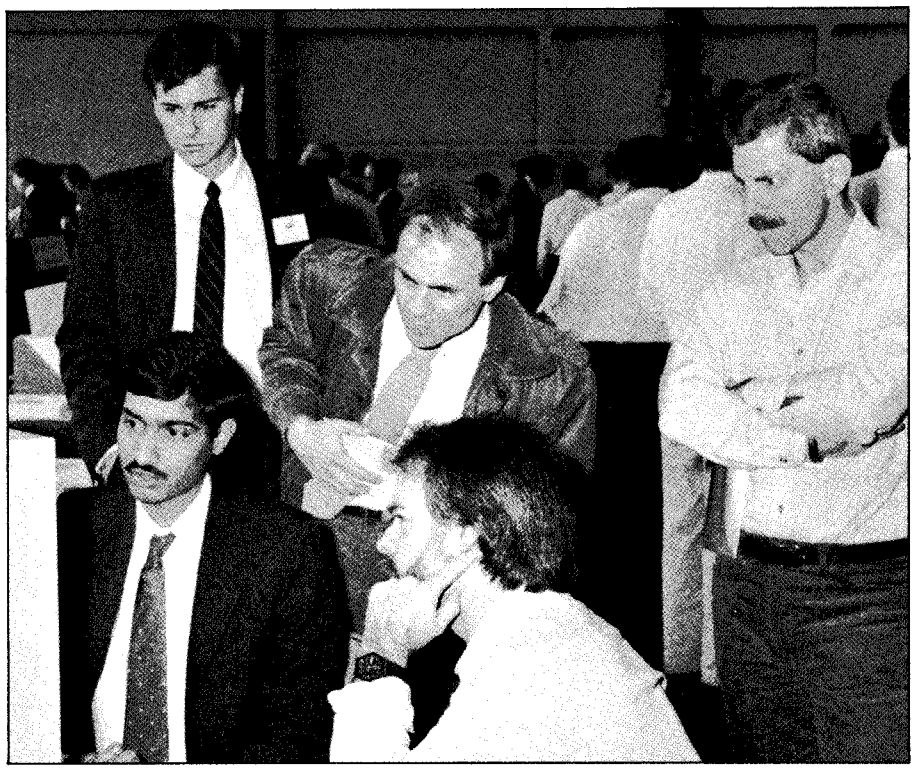


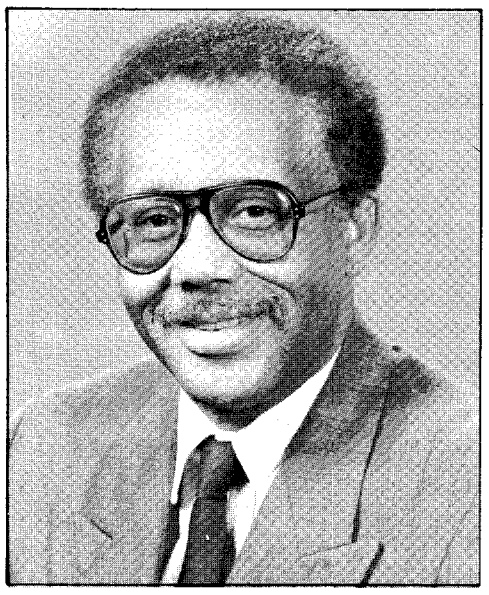
Photo by NADC Photo Lab

Computer Fair draws a crowd

More than 500 visitors and NADC personnel attended the Center's first in-house Software Tool and Workstation Product Fair sponsored by the Systems and Software Technology Department. The two-day event, featuring hourly demonstrations highlighted Sun Microsystems Family of Workstations and the Nav Air Software Engineering Environment Tool Set (NASEE).

Command Corner

Captain Curtis Winters
Center Commander



Guy Dilworth
Technical Director

Command Corner

To all hands:

Madera fills SES position

Anthony J. Madera

We are pleased to announce the selection of Anthony J. Madera to the Senior Executive Service (SES) position of Associate Department Head for ASW Acoustics Development. Madera will assume SES status after Headquarters' approval.

GUY C. DILWORTH
Technical Director

C.J. WINTERS
Commander

Commander Salutes

HMC **Duane Murray** (Code 60): For his nomination for the 1990 Naval Aviation Physiology Enlisted Award.

The Air Vehicle and Crew Systems Technology Department personnel: For outstanding support for Naval aviation and Total Quality Management as recognized by Admiral R.C. Gentz, Commander, Naval Air Systems Command.

William Zarkowski (Code 60): For leading the Personal Protection Systems Branch to their selection for the 1990 FAILSAFE Special Award for Sustained Engineering Excellence.

George Gillespie (Code 60): For efforts resulting in your selection for the 1990 FAILSAFE Award for Individual Engineering Achievement.

Peter Verbugt, John Tralies, David Seevers, Joseph Miller, Lawrence Coar (Code 50): For efforts on behalf of PMW-183 in the development of low frequency active sonar systems.

Robert Zaleski (Code 30): For diligent efforts and successful delivery of the SEYMOUR working prototype for the Naval Science Advisory Program.

Michael Kijesky (Code 50): For participation as a member of the Anti-Submarine Warfare Architecture External Review Panel for the Space and Naval Warfare Systems Command.

Michael Caddy (Code 60): For efforts resulting in your selection as an Honor Graduate at the Management Development Seminar in Oak Ridge, TN.

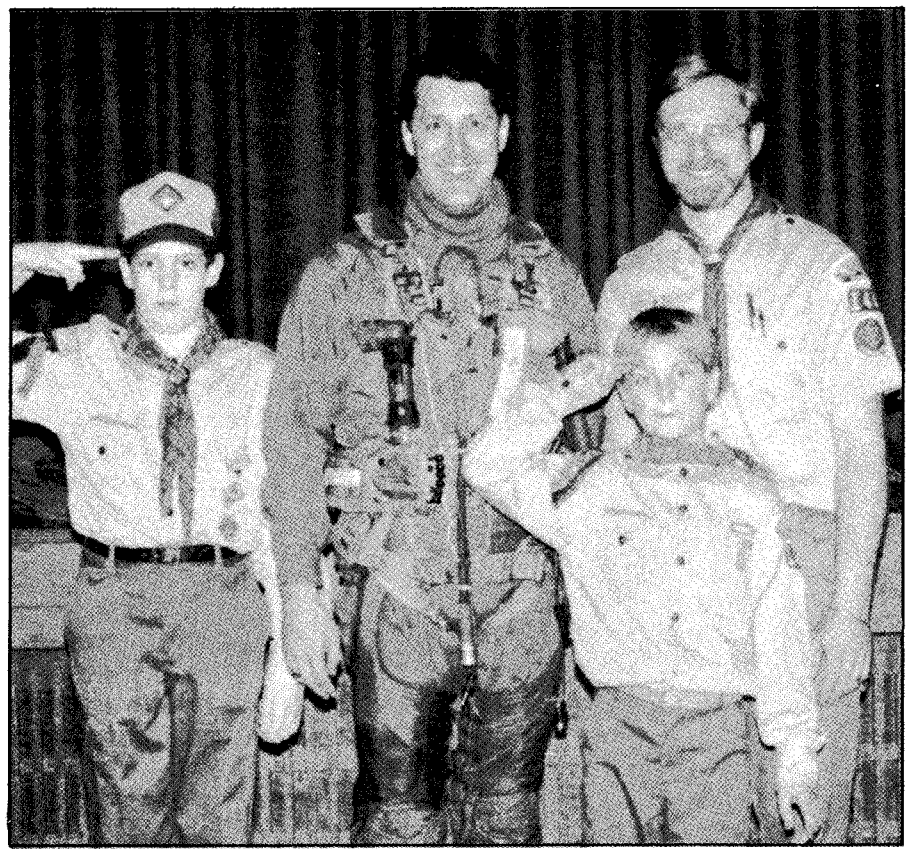


Photo by LeAnna Brennan

Brennan soars for Scouts

LCDR Kevin Brennan was guest speaker at the Arrow of Light Ceremony held by Cub Scout Pack 144 at Our Lady of Good Counsel in Doylestown. With LCDR Brennan is CubMaster Larry Schloder and two recipients of the Arrow of Light, David Schloder and Derek Shippee. The Arrow of Light is the highest award a cub scout can achieve.

Brennan, of the Anti-Submarine Warfare Systems Department, gave a presentation on pilots and Navy aviation.

If the SOC fits

By Robert Janes

One portion of the Navy Standards of Conduct (SOC) instruction is devoted exclusively to government travel, an area where many SOC questions arise. While the SOC instruction provides some general guidance, the real details concerning what is and is not allowable in connection with official travel appear in the Joint Travel Regulations, or JTR, which sets forth DoD-wide travel rules and regulations. One or more copies of the JTR are available for review within the Financial Management and Planning Department, Code 02.

The rules regarding travel are extensive and complex. Some things are quite obvious. We all know, for example, that deliberate and knowing mischarges on government travel claims can get people in trouble, and we have had some instances of that here in the past, where the people involved had to pay back the amount overcharged the government and also received some disciplinary action (this included both suspensions and demotions).

In addition to the obvious, there are other more esoteric rules. One hot topic lately involves meals provided as part of a conference fee. It is not uncommon for an organization which is hosting a conference, seminar, or other gathering to levy a registration fee which includes payment for one or more meals that are integral to the conference. For example, one might pay an overall registration fee, say $250, for a two-day conference, and the

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NADC **Reflector** REFLECTOR
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Number 3
MAR 1990

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Technical Director ..... **Guy C. Dilworth, Jr.**
Public Affairs Officer ..... **James S. Kingston**
Editor ..... **Mary Ann Brett**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Two receive Navy merit awards

Photo by NADC Photo Lab

Paul Moser receives the Navy Superior Civilian Service Award from Center Commander CAPT Curtis Winters.

Photo by NADC Photo Lab

Dr. Gloria Chisum is presented the Navy Meritorious Civilian Service Medal by CAPT Curtis Winters, Center Commander.

By Mary Ann Brett

Paul Moser and recently retired Dr. Gloria Chisum received the Navy's second and third highest level honorary awards, the Navy Superior Civilian Service Award and the Navy Meritorious Civilian Service Award, respectively.

Paul Moser is Senior Consultant in the Mission Avionics Technology Department. He was recognized for his work on the Chief of Naval Operations-chartered Quo Vadis II Panel. The Panel was directed to define what Navy operational needs will be for the next fifty years, to determine what technologies already exist and forecast what technologies will be developed to meet our future needs, and to generate a strategy and management plan ensuring optimized systems and technologies will be developed and available when required.

According to Rear Admiral John C. Weaver, Commander of the Space and Naval Warfare Systems Command, "You (Moser) have been the primary individual providing technological forecasting in the areas of aircraft systems and sensors. Your knowledge, insight and incisive analysis have contributed significantly to the success the Panel has had to date. Your stewardship has enabled the Panel to identify future aircraft needs and to ensure that we have or will shortly develop R&D programs to address these issues. Your indepth scientific and engineering background is helping to reshape the way the Navy's airborne programs will proceed in the future."

Moser, who has worked at the Center for 35 years, received the Meritorious Civilian Service Award in 1985. He has authored or coauthored more than 70 technical publications and holds three patents. He holds a BA and MA in physics from LaSalle University and the University of Delaware, respectively and has also completed post graduate course work in Physics at Duke University.

Dr. Gloria Chisum, a research psychologist in the Air Vehicle and Crew Systems Technology Department, was recognized for her

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Halsted, Greene Chair Society for Information Display

By Mary Ann Brett

Charles P. Halsted and Janettarose L. Greene of the Human Factors Applications and Displays Branch (Code 6022) were appointed chair and vice-chair, respectively of the Delaware Valley Chapter of the Society for Information Display (SID).

Founded in 1962, SID is the only worldwide professionals' society committed exclusively to the presentation and exchange of ideas and technologies involved in information display. It maintains a membership of approximately 3,000 interdisciplinary scientists and engineers.

continued on page 4

Photo by Mary Ann Brett

Janettarose Greene and Charles Halsted seated at a familiar display terminal.

JTIDS — alive and well

By LCDR Neal Hesser
JTIDS Program Director

On January 30, 1990 a E-2C aircraft landed at Bethpage, NY completing the first ever flight of a Navy aircraft outfitted with the full scale development Joint Tactical Information Distribution System (JTIDS). This milestone clearly demonstrates that the Navy's commitment to the future of JTIDS as the core element in its Communications, Command and Control (C^3) structure remains stronger than ever. Current plans call for the installation of JTIDS Class two terminals on all E-2Cs, F-14s, AEGIS cruisers/destroyers, and CVs with an initial operation capability in early 1993.

Although now a distant memory, the first real JTIDS advanced development model flights occurred here at NADC in early 1980, and we are still playing a leadership role in this major weapons system acquisition. In fact, even though our role has changed with the times, several people involved in those flights (Stan Olenick, Pat Finnegan, Jim Eck) are still providing major contributions under the leadership of Lou Naglak, Head of the Communication Navigation Technology Department.

Our role as the lead laboratory for air system engineering, follow-on terminal definition, relative navigation technology, frequency assignment, test architectures, and air E^3 demonstrates our continued pervasive involvement in every phase of the program. However, none of this work carries the importance and visibility that resulted from our 1986 proposal that NADC become the JTIDS System Implementer. This single statement now means that every event involving JTIDS depends on the NADC-developed network initialization data loads that "turn the terminals on."

Because JTIDS is a high anti-jam programmable communications system that simultaneously satisfies numerous information exchange requirements (including voice, surveillance,

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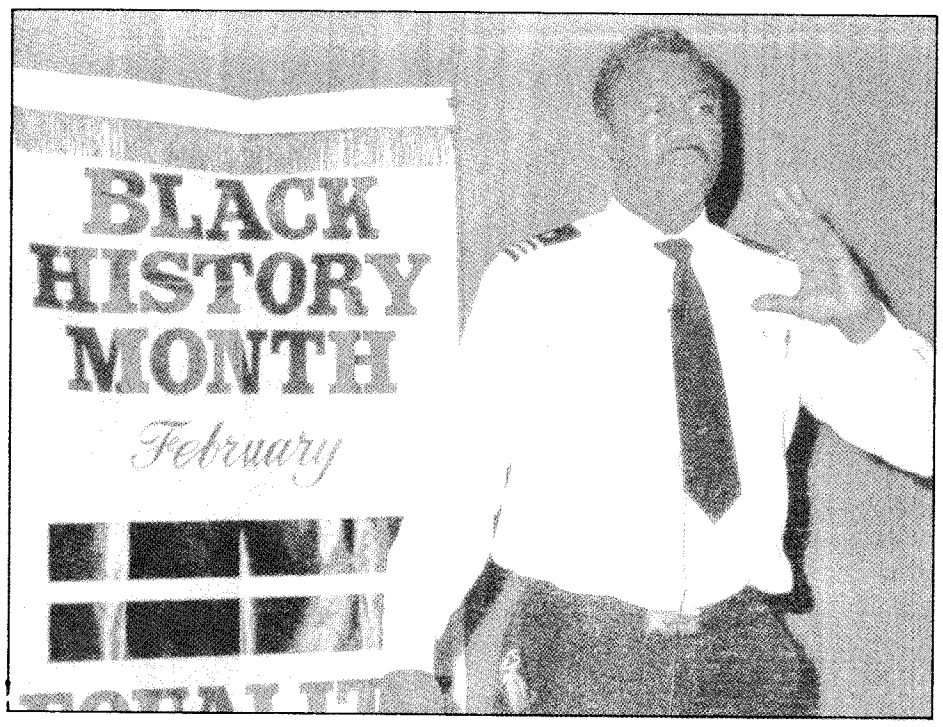


Photo by Drew Schmith

Top notch Top Gun instructor visits —

CDR Charles Nesby was a guest speaker during February's Black History Month activities sponsored by the Center's Black Interest Group. CDR Nesby spoke about the recruitment and advancement of Blacks and other minorities in the Navy, and about his many interesting and exciting experiences as a "Top Gun" instructor.

Halsted, Greene — SID

continued from page 3

Halsted, new SID chairman and electronic engineer, is currently working on display readability evaluations during extreme conditions of bright sunlight and darkness. Halsted, now at NADC for nearly three years, has been interested in color display technology and human factors since he worked in pioneering color TV design in private industry.

Greene, an engineering psychologist at the Center since 1984, works to ensure operators can make full use of their equipment. "I evaluate how well displays can be seen, read and reached," she said, "and how well they provide needed information in a timely and efficient manner."

"Our job" said Halsted, "is to help the Navy get the best product to suit its needs. We develop the requirements, give them to the contractors, and then evaluate their results." Greene explained, "One way of getting those requirements is by visiting the Fleet and asking them [the users] what they need to get their job done."

"It is to NADC's credit," said Halsted, "that engineers and human factors people are combined under one roof." He said, at many places, there's little or no communication until problems arise, then meetings are called to try and work things out. Here, we interact daily and problems are dealt with as they surface." According to Greene, "the Human Factors Applications and Displays Branch applies the products of research and development in human factors and control/display technology to air system design, development and acquisition activities at NADC." "Our ultimate goal," she said, "is to ensure optimal integration of human operators/maintainers with all systems components during aircraft system development and acquisition."

Halsted and Greene agreed that communication is the key element to the importance of their belonging to SID. Halsted said, "Networking and exposure to lectures by and with people with like interest in information display technology is of the utmost importance."

Other NADC personnel involved in SID's Executive Board include Finance Director John W. Parker, III and Regional Director Stephen Filarsky.

JTIDS — alive and well

continued from page 3

air control, fighter-to-fighter, position reporting, weapons coordination, and EW data) under a time division multiple access architecture, each terminal's initialization data load reflects the total planning process inherent to the network design. NAVAIRDEVCEN has designed and is building this process that allocates all facets of the system capacity (40 times link 11) from function to platform. This process involving, network design, planning, initiation and network operation is currently under review by DOD and NATO for acceptance at all levels and will keep NADC involved in every JTIDS flight for years to come.

UPCOMING SID EVENTS:

18 April 1990 SID at National Aviation Facilities Experimental Center, Atlantic City, NJ

16 May 1990, SID AT NADC, "Light, Color and, Visual Human Factors;" Part I of III. Talks to be given by: Mr. C. Halsted and Mr. W. Breitmaier (NADC, Code 6022)

Facts, Facts, Facts, Facts,

By Michael Blank, P.E.

All home appliances use energy, but how much are these appliances costing us? And, what is the life expectancy of the appliances?

Life expectancy of almost all generally-used appliances increased for the recent decade. In addition, new appliances like microwave ovens were discovered, and we all expect in the future there will be new significant technological breakthroughs in all our life styles including appliances.

According to Appliance Magazine, the table below shows the current average life expectancy of major appliances:

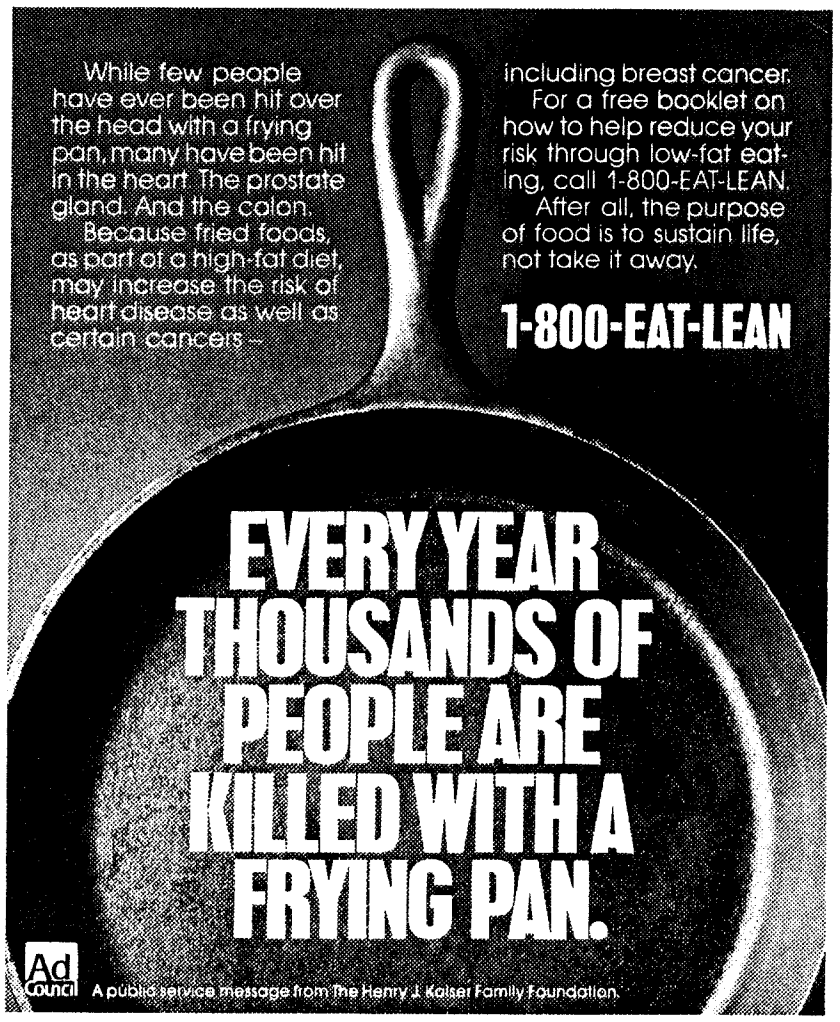
	YEARS LIFE EXPECTANCY		
Appliance	Low	High	Average
Dishwashers	8	14	11
Dryers, electric	11	16	13
Dryers, gas	12	16	14
Freezers, Standard	13	20	15
Micro Ovens/Ranges			
Combination Units	11	14	12
Counter Units	10	14	11
Ranges, Free Standing, Electric	13	19	15
Ranges, Free Standing, Gas	11	18	15
Refrigerators, Standard	11	18	13
Washers, Automatic & Semi	9	14	12
Water Heaters, Electric	8	17	12
Water Heaters, Gas	5	13	10
Air-Conditioners, Room	8	14	11
Air-Conditioners, Unitary	9	15	12

Conserving energy means using it wisely. It isn't necessary to do without convenience gadgets and appliances which help make life more enjoyable and pleasant. Energy can be conserved by eliminating non-productive energy consumption.

If you aren't using appliances, simply turn the switches off. We need to save energy for us and future generations. Statistics show that current life expectancy for men is 76 years and 81 for women. Life expectancy constantly increases. Boys born in this year, 1990, can expect to live 78 years and girls, 83.

WINDOWS FOR THE FUTURE

In the near future our homes and cars, according to "Solar Energy Research Institute," may be equipped with electrochromic windows. These windows with a transparent, multilayer coating of metal oxide on the surface will be functional, economical and practical. This window coating will control automatically the amount of daylight and solar heat entering a home, building or car, will reduce glare and air conditioning requirements in the summer and make efficient use of solar heat gain in the winter.



Workers reap rewards for quality at NADC

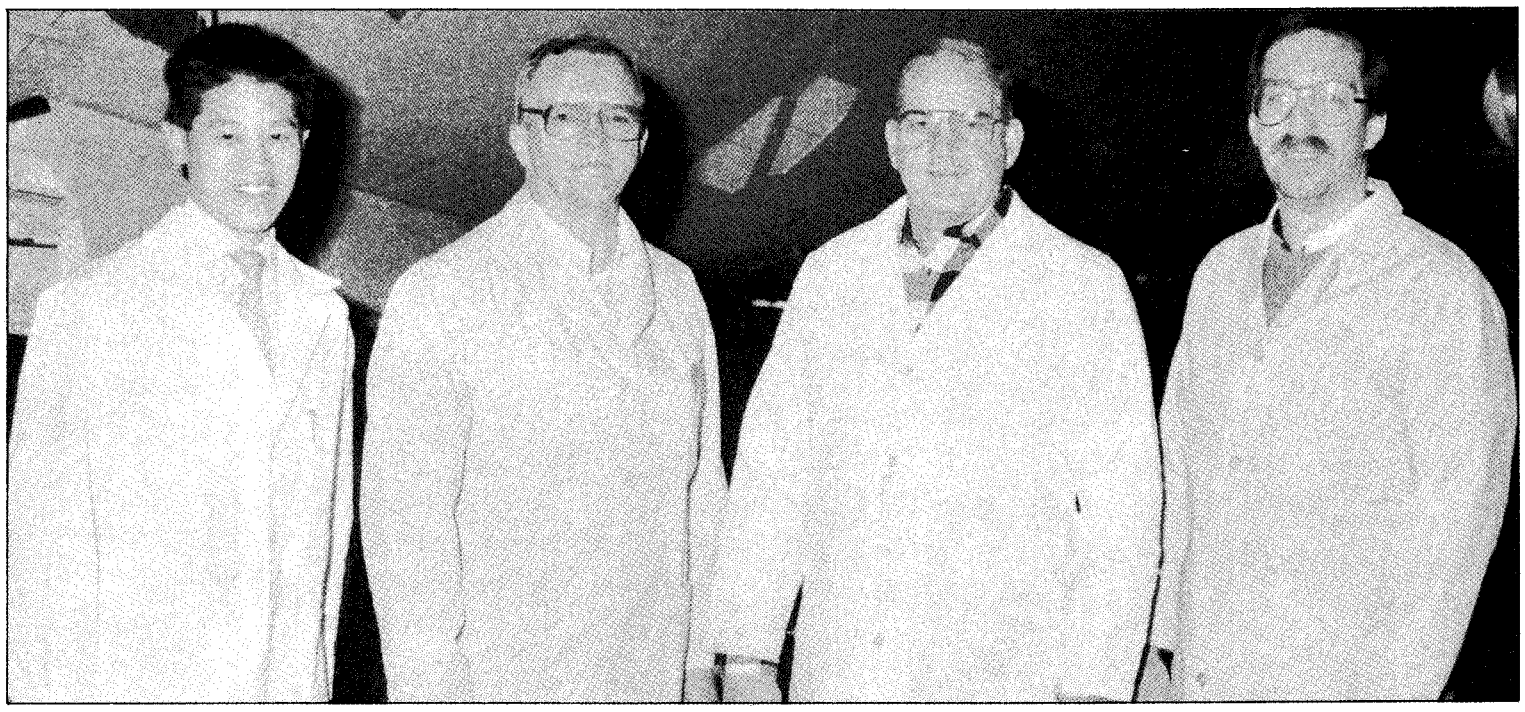


Photo by NADC Photo Lab

Anthony Eng, William Green, Donald Hirst and Charles Hegedus are co-suggesters/inventors of the UNICOAT paint.

By Mary Ann Brett

More and more of NADC's finest are being recognized for their quality work, accomplishments and suggestions. Recently, Charles Hegedus, Anthony Eng, William Greene and Donald Hirst received $1200 each for estimated cost savings resulting from the use of their UNICOAT self-priming paint. Additionally, two nominations were approved through SPAWAR and the Secretary of the Navy and forwarded to the Secretary of Defense (SECDEF) for the SECDEF Productivity Excellence Award. William Halpern, Dr. Edward Feinberg, Robert Finkelman and Christopher Kirk were nominated fortheir development and implementation of the Workload Analysis and Computer Resources Procurement Systems resulting in nearly $3 million saved in FY89. Robert Finkelman, Head of the Computer Department was also nominated for implementing new computer consolidation and maintenance service buy methods resulting in better productivity, improved maintenance and lowered costs by up to 70%.

Good ideas are worth money

Good ideas are worth money--both in short or long term savings to the Center and in cash awards to the suggestors. Seven such suggestions from across the Center were adopted to date during fiscal year 1990.

The suggestor, suggestion and award are: **Jeffrey Bass** (Code 40) for "Elimination of Potential Shock," **$50; Eric Preissner** (Code 60) for "Absence of Emergency Lighting," $100; **David Stasen** (Code 81) for "Non-skid Floor Strips," $100; **Joseph Swift** and **Charles Winslow** (Code 83) for "Reinforcing Pivot Hinge," $100 each; **Charles Winslow** (Code 83) for "Support Wheels for Gate," $200.

If you have a suggestion on where or how the Center can raise its standard of quality or save money, call Bettie Simpson-Lawrence, Code 031, ext. 3079.

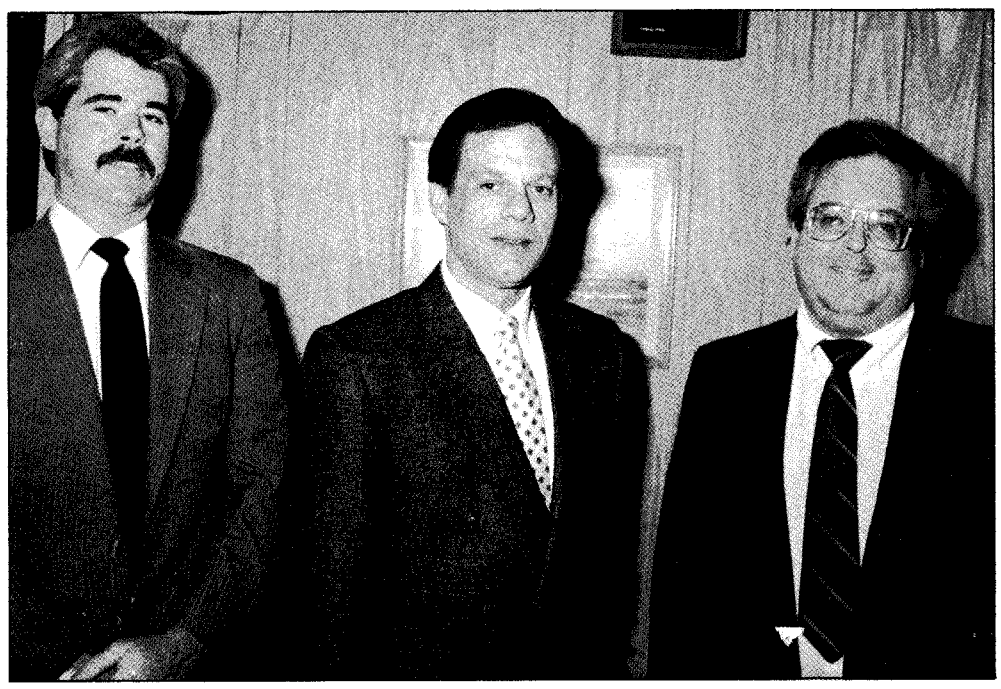


Photo by NADC Photo Lab

Christopher Kirk, William Halpern, Robert Finkelman (and Dr. Edward Feinberg, not shown) were nominated for the SECDEF Productivity Excellence Award.

Patent pending

By Mary Ann Brett

Inventions, many with commercial potential, are continually being developed here at NADC. With the help and guidance of the Center's Patent Counsel Staff, this NADC-developed technology will continue to be recognized for its quality and innovation. In addition, increased emphasis on the licensing of government-developed technology has created money-making opportunities for engineers and scientists as well as the Center. If you have any questions on patents in general or these in particular, do no hesistate to call the Patent Counsel office, ext. 3000.

Patents issued

"**Garment Pressurizing Apparatus**" by Walter Werner, Jeffrey Biscardi and L. McClain--Patent No. 4,885,930.

"**Combination Primer/Topcoat Coating**" by Charles Hegedus and William Green--Patent No. 4,885,324.

Recent patent applications

"**Vibration-Damping Structural Member**" by David Barrett, Navy Case No. 71011. This invention relates to load-bearing elements or structural members which exhibit damping charcteristics when subjected to vibrations from axial loads.

"**Method and Apparatus for Measuring Corrosion Beneath Thin Films**" by Vinod Agarwala and Paul Kennedy, Navy Case No. 72396. This invention relates to a method and apparatus for measuring the corrosion beneath thin films of material.

Photo by NADC Photo Lab

Robert Finkelman, Head of the Computer Department and SECDEF Productivity Excellence Award nominee.

NADC civilian W&R has a lot in store for you

By Margaret Vigelis

Most people know the W & R store where they can get their film developed, buy hats, clothing, and coffee mugs with the NADC logo, as well as movie tickets and film. But that is just one part of W&R. Did you ever wonder what else NADC's civilian Welfare and Recreation (W&R) Association does - who it helps - why there is one?

According to its By Laws, W&R's objective is to organize, support and encourage activities determined to be advantageous to the welfare and morale of all NADC employees, and to establish and conduct recreational or leisure time programs for all personnel which encourage strengthening bodies, refreshing minds, uplifting spirits and enriching leisure time.

When you're sick or recuperating, you can borrow medical equipment from W&R such as wheel chairs, crutches, walkers, canes, and even a hospital bed. To encourage employees to donate blood the W&R gives coupons for a discount on lunch and holds drawings for terrific prizes. Your Welfare & Recreation Association sends flowers to the immediate family of deceased Center employees, assists any employee who may need a small emergency loan (submitted through the employee's supervisor), and gives each Center retiree a farewell gift package, consisting of a hat, tee-shirt, and mug. Any sports or social-type club open to all Center employees can receive monetary support from W&R. It also offers discounted tickets to shows, sporting events, amusement parks, and movie theaters. In fact, W&R subsidizes the annual Dorney Park Picnic (food and prizes). For many years W&R has held a Christmas party at NADC for the children of Bethanna and Christ's home. Each child receives a gift and is treated to a show and lunch. This is all made possible by your voluntary membership dues, profits from the W&R store, and other contributions.

The W&R Board Members stated emphatically, that **they** are not the W&R Association — **you** are —every NADC employee! You're a member, whether you pay dues or not. All current employees, military, and retirees, can take advantage of everything that W&R offers. Keep in mind that every person who works in the W&R store, sells tickets, organizes the Children's Christmas Party, or helps at the annual Center picnic, is a volunteer, including the W&R Board of Directors. All donate their time and effort to make your W&R work for you.

The present W&R Board of Directors are: Phil Horne, Chairman, a Budget Analyst in Code 023; Len Roach, Vice Chairperson, an Electronic Engineer in Code 5023; Phyllis Grant, Treasurer, an Electronic Technician in Code 8142; Joan Kopper, Secretary, a Management Assistant in Code 81; Margaret Vigelis, Recreation, a Public Information Assistant in Code 041; Carl Plantarich, Assistance, a General Foreman, Code 811; Erv Rothermel, Hospital Equipment, an Assistant Planner & Estimater, Code 811; Barbara Jordan, Ways & Means, a Mechanical Engineering Technician, Code 6011; Peter Youssef, Member-At-Large, a Computer Scientist, Code 7051; Donna Aragon, Member-At-Large, a Mechanical Engineer, Code 60B.

Board meetings are open to any employee who requests to attend. Anyone interested in serving on a committee or working in the W&R store should call Phil Horne at extension 1486. W&R needs you — your skills, energy, and help would be appreciated.

Photo by Mary Ann Brett

NADC Civilian W&R Association board members include Erv Rothermel, Phyllis Grant, Carl Plantarich, Joan Kopper, Phil Horne, Margaret Vigelis, Len Roach, Barbara Jordan. Board members not pictured are Peter Youssef, Donna Aragon and ENS Kim Blood.

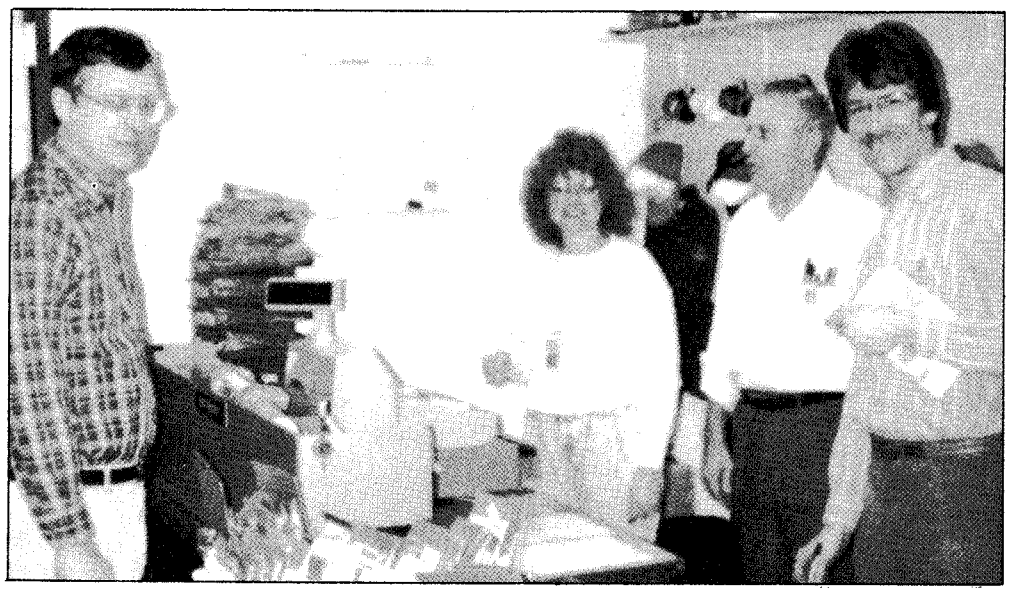


Photo by Mary Ann Brett

Carl Myers, Code 5012, is helped by W&R store volunteers Barbara Jordan, Erv Rothermel and Tom Haug.

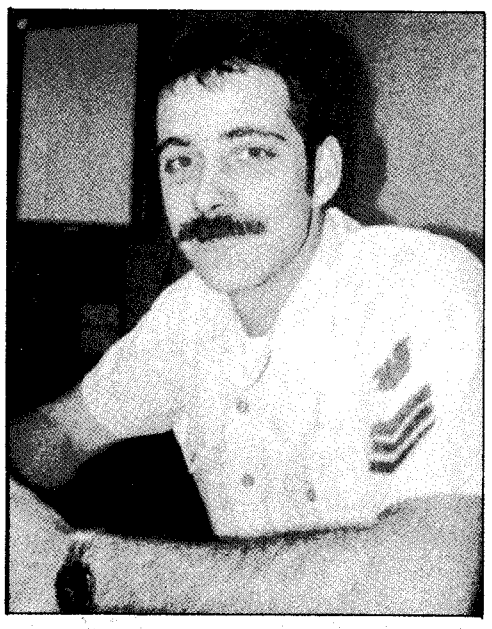
Who they are; What they do

By Michael Delledonne

With a family of "flag wavers," Aviation Electronics Technician (AE) First Class James Wardoch grew up knowing the military was in his future. "My grandparents emigrated from Poland in 1911 and they just loved this country," said Wardoch. "My grandmother worked in a mission for homeless veterans, my father was in the Army and I have several other family members serving in the military. The armed forces has always been a part of my life."

The seven-year Navy veteran, originally from Camden, NJ, enjoyed working with electricity and chose it for his Navy career. "I love airplanes and I love fixing things," said the 28-year old. "The planes always need fixing or upkeeping so it keeps me busy doing what I like to do."

Stationed at the Center for two years, Wardoch is due to transfer in October to Brunswick, Me. "I will miss being here because it affords me the opportunity to work at something I enjoy," explained Wardoch. "But, I'm really looking forward to Maine because I love the snow and my family is located there so it will be nice to be near them again."



AE1 James Wardoch

Two receive merit awards

continued from page 3

outstanding contributions as Head of the Vision Research Laboratory at NADC.

Center Commander CAPT Curtis Winters described her accomplishments.

"The basic research conducted by you (Chisum) has been used to determine the parameters of visual protection and performance enhancement devices used by the Navy, Marines, Air Force and Army operational personnel. In addition, your research has resulted in the operational use of devices designed to counter the emerging laser threat to the visual safety and performance of Navy personnel. The scientific leadership you have demonstrated has resulted in a broad reliance on you and your team for analysis of the visual aspects of aircraft and weapon system designs and for the execution of fundamental research required to expand our knowledge and understanding of the visual process . . . This work has been vital for continued safety and mission accomplishments of naval aircrew in an increasingly hostile threat environment."

Chisum has authored or co-authored more than 100 technical publications. She has a BS and MS in Psychology from Howard University and a Ph.D. in Psychology from the University of Pennsylvania. She also holds three honorary doctorates and has more than twenty awards and citations to her credit.

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

Federal Women's Program Update

Mentor program, a 1990 goal

By Margaret Russo

This year, under Chairperson Margaret Russo (Code 6062), Vice-Chairperson Elaine Picard (Code 101K), and Recording Secretary Lam Ta (Code 6061), the Federal Women's Program Committee (FWPC) will be focusing on career development activities, establishing a mentoring program, and sponsoring functions that address women's concerns. The highlights of the year are the Women's History Month events in March, and the Women's Equality Day Luncheon in August at which the Award for Excellence is given. Watch the Log and the FWPC flyers for information and announcements for these and other events that will be held throughout the year.

The FWPC, comprised of members from each department across the Center, is organized under the guidance of the Equal Employment Opportunity (EEO) Program, serving in an advisory capacity. The committee may, according to its by-laws, undertake a study of any problem affecting Center women or sponsor events that will enhance the Federal Women's Program, whose primary goals are:

—to end sex discrimination and prevent sexual harassment;
—to increase job opportunities;
—to increase educational opportunities;
—to become involved in the community.

The FWPC meets the third Wednesday of every month at 10:30 in the Walnut Conference Room. If you are interested in any of the committee's activities, you are invited to attend our meetings (with supervisory permission). Or, you can send your questions or comments to the FWPC Chairperson or the Federal Women's Program Manager (Code 03E).

NCMA sponsors
Secretaries' Day Luncheon
NADC Barnaby Dining Room
$10.00
25 April 1990, 1130
Guest Speaker: Dr. David S. Berg, Ph.D., M.F.T.
(Clinical Psychologist and renowned speaker on stress management)

Photo by Mary Ann Brett

Flowers flourish for Valentine's Day —

NADC's Officers' Wives Club (OWC) conducted another successful annual flower sale. In no more than minutes, all the bouquets which took hours to prepare, were sold out. Profits from this and other OWC events throughout the year are donated to local charities.

If the SOC fits

continued from page 2

payment of that fee automatically entitles the attendee to a lunch each day of the conference. Many of us have experienced this, and given little or no thought to it, viewing it as essentially a free meal, and consequently a chance to make a little money (or else take less of a loss) on the trip involved. It turns out that that is not the case. The JTR provides that any time a luncheon or banquet cost is included in a registration fee, the traveler must report that fact on the travel claim, listing the dates and specific meals furnished. The people processing the claim will then make an appropriate reduction in the per diem entitlement. This is something all government travelers should be aware of. It is an item which government auditors have been aggressively reviewing, and there have been cases where NADC travelers have been audited specifically for this.

SPAWAR R&D Exchange

Many R&D exchange attendees opted to take advantage of one or more of the several NADC facilities tours offered during their stay. Included among the tour Dynamic Flight Simulator, the Inertial Navigation Facility, the Crew Station Evaluation Facility, and the P-3, CVASWM, and Materials laboratories.

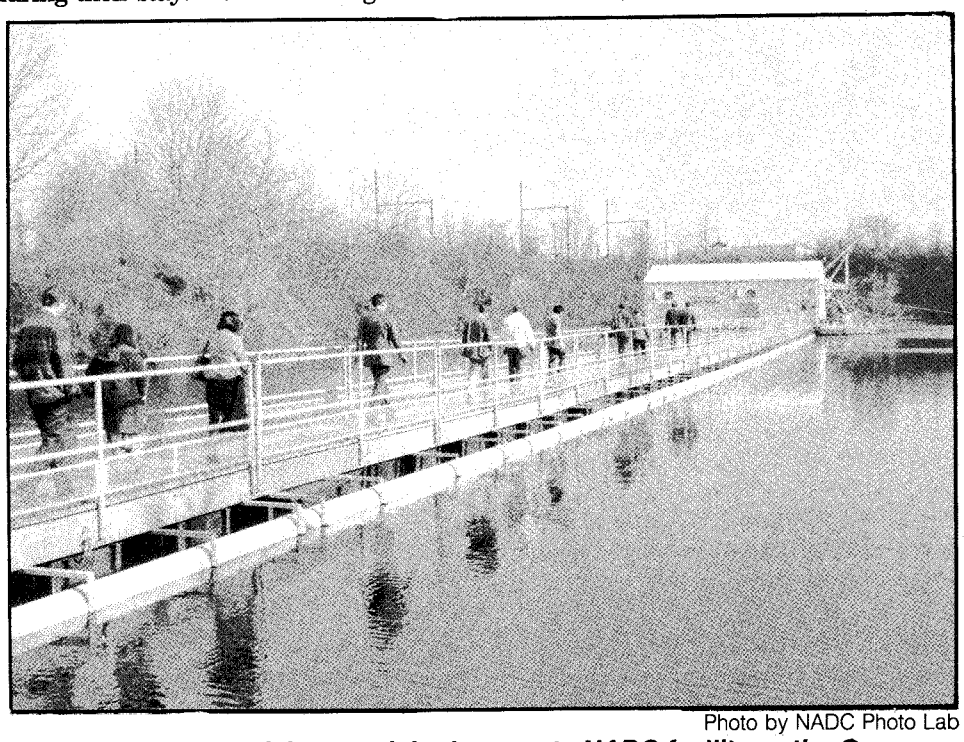


Photo by NADC Photo Lab

R&D exchange participants visited a remote NADC facility — the Open Water Test Facility — a flooded quarry in Oreland, PA.

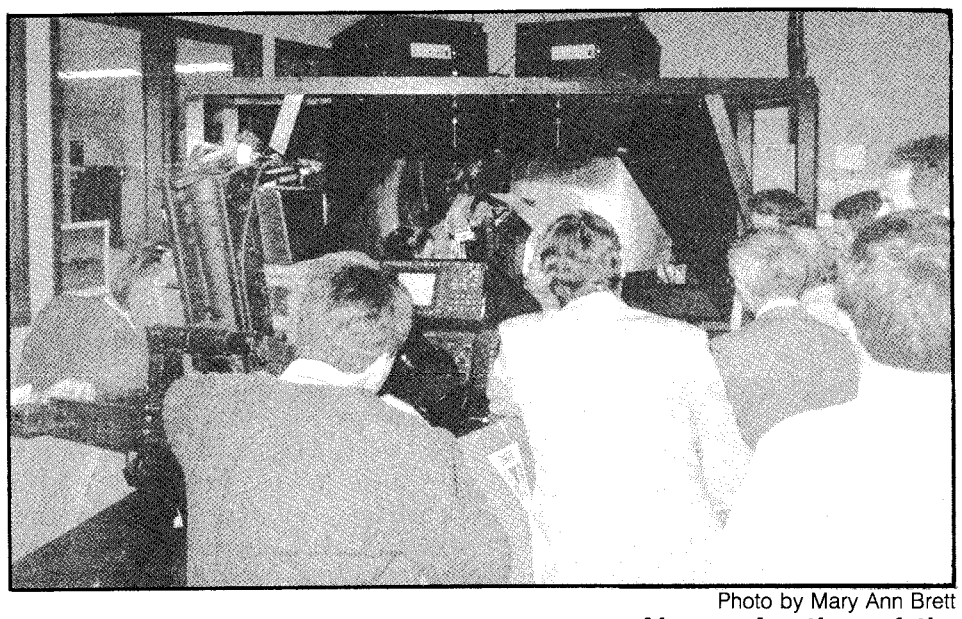


Photo by Mary Ann Brett

Above: Another of the tours included a stop at NADC's Tactical Air (TACAIR) simulator . . .

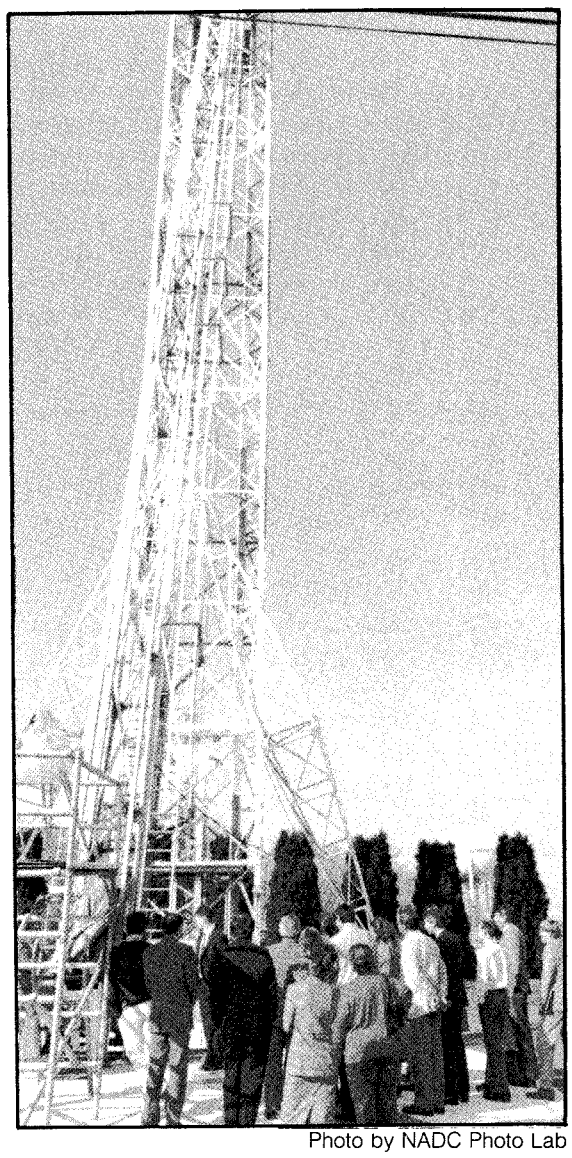


Photo by NADC Photo Lab

Left:
The Ejection Tower or Biomedical Facility was also a point of interest to many of the visitors.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

W & R Golf Preliminary Schedule

DATE	COURSE	COMMISSIONER
10 APR TUES.	WEDGWOOD** ALLENTOWN, PA	FRED DELARSO X1214
8 MAY TUES.	CENTER SQUARE CENTER SQUARE, PA	BOB LEHMAN X1669
? JUN	LOCUST VALLEY COOPERSBURG, PA	ROB MULLER 345-1869
10 JUL TUES.	TWIN LAKES MAINLAND, PA	MIKE MIRABELLA 674-0200
7 AUG TUES.	UPPER PERK PENNSBURG, PA	FRANK SHEEDY 675-6753
11 SEP TUES.	LIMEKILN AMBLER, PA	SCOTT FOWLER X3665
2 OCT TUES.	LOCUST VALLEY* COOPERSBURG, PA	VINCE FORMICA X1296
6 NOV TUES	FOX HOLLOW QUAKERTOWN, PA	JOHN SNISCAK X2482

NOTE: *THIS SCHEDULE MAY REQUIRE DATE OR COURSE REVISIONS!* KEEP AN EYE ON THE "GOLF LEAGUE" BULLETIN BOARD AND THE DAILY LOG!! RAIN DATES TO BE ANNOUNCED. OUR FIRST REQUEST WILL BE FOR THURSDAY OF THE SAME WEEK.

*SCRAMBLE. ALL OTHERS INDIVIDUAL PLAY.
**CARTS MAY BE REQUIRED. SPECIAL PACKAGE WILL PROBABLY BE AVAILABLE.

Mixed League Bowling News

By Tom Reiter

News From Around The League — The Who Cares have just about captured the 50/50 Sales Award. It's hard to resist buying from **Dee Gramlich** and **John Bowes** since you can hear them coming from a mile away. **Rick Yeager** had a big game Wednesday night March 8th. A clean game with 3, nine/spare frames mixed in with 9 strikes for a 247 total. Rick's From The Gutter, sparked by the spirited (that means loud) **Lorraine Williams**, looks like a serious contender this half. **Helene Goldstein** was surprised a couple of weeks ago when a banner was spread across the lanes proclaiming her birthday. You've got to be a sport to bowl with an age sign hanging over your head all night. Glad to see **Di Beach** back bowling after extended maternity leave. Also noticed **Mark Lind** back this month; someone commented that it must still be too chilly for him to wear his shorts. Phyllis and Rudy may have abandoned our League, but daughter **Gina Virga's** charm is a pretty good replacement. By the way, some of his teammates have asked whatever became of **Mike D'Aulerio**? Those sparklers on **Bernadette Weber**'s and **Lorrie Dunn**'s left hands do mean that they will be joining the "marrieds" this Spring. **Roxanne Douglas** showed some courage by returning after a broken bowling wrist and rolling a 175 game on her first try. Speaking of breaks, **Charl Pohle** came out to root for her team and husband Bill while on crutches and wondering if she will be able to get in enough games to qualify for a high game award. As you can see, the news was sparse this month but should improve as we get ready to move into the last full month of the season.

Technical Highlights

The Navy Underwater Acoustic Measurement Program (NUAMP) acquisition plan is approved. The commerce business daily announcement release has been approved. Rapid Development Capability (RDC) was granted by ASN, RE&S for this program.

A Very Low Frequency (VLF) brief was given to ADM Wolkensdorfer (OP-981) on 2/21/90 by Code 504 personnel (James McEachern). This brief presented the FY90 plan for utilization of the $3.6M plus-up OP-981 has given to the VLF program in FY90. Procurement plans for the Advanced VLF Sensors were identified as well as plans for a joint Naval Oceanographic Applied Research Lab/NADC VLF sea test be conducted in August 1990. OP-981 was highly satisfied with the brief and asked us to put together a VLF Primer (joint NADC/NOARL effort) for Mr. Ricard Rumpf, Principal Deputy, ASN, RE&S.

The Engineering Development Branch has successfully completed the design of a new System Performance Monitor (SPM) to support all NAVAIRDEVCEN ASW facilities. The SPM design provides software performance data collection with selected real-time analysis and event-oriented data capture. This unit solves a problem common to most Center ASW platform facilities and was cooperatively funded by the VP, VS, CV-ASWM programs and ASWEL. The SPM will provide the ASW facilities with the capability to monitor the operation of software developed to run in the various ASW computers; e.g., CP-901, UYK-43, AYK-10, UYS-1 and the DP/DGU for P-3 Update IV. The SPM will make the software development process more efficient by allowing the developers to determine system efficiency under various system loading scenarios in the laboratory and therefore reduce the need for flight testing.

The Coast Guard has designated this Center as the System Software Support Activity (SSSA) for the HH-60J. Plans are in process to upgrade the Center's Vertical Flight Facility to fully support the HH-60J software development.

Kelso named new CNO

Admiral Frank B. Kelso, Chief of the U.S. Atlantic Command (CINCLANT), was nominated by President Bush to be Chief of Naval Operations. He will succeed Admiral Carlisle Trost, whose term expires June 30. Before becoming CINCLANT, Kelso was commander of the U.S. Atlantic Fleet, and, prior to that, commander of the U.S. Sixth Fleet in the Mediterranean.

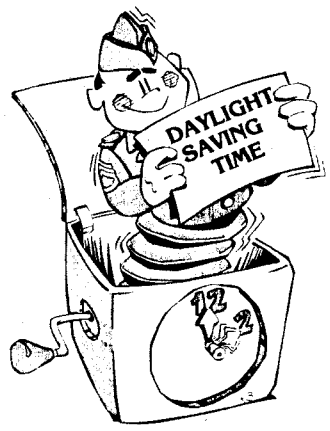
And the nominees are...

There are nearly one hundred honorary and monetary 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 1990 are:

- PARS Performance Award (cash)
- Executive Excellence Award (honorary)
- Young Federal Lawyer Award (honorary)
- Bryce Harlow Business-Government Relations Award (honorary)

SPRING FORWARD



SET CLOCKS FORWARD ONE HOUR AT 2 A.M., APRIL 1

NADC

Reflector

Volume 35 Number 4 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. April 1990

J. BARTON 5021

Center plays role in experimental aircraft

Enhanced maneuverability X-31 rolls out

By Lisa Cowles

The X-31, the first international X-aircraft, rolled out March 1, 1990 at Rockwell International, in Palmdale, CA. It is being jointly developed by the Defense Advanced Research Projects Agency (DARPA) and its agent, the Naval Air Systems Command, and the Ministry of Defense of the Federal Republic of Germany. This rollout represents a three year effort by Rockwell International Corporation's North American Aircraft and the German Messerschmitt-Bolkow-Blohm (MBB) to develop and produce an experimental aircraft capable of controlled flight beyond aerodynamic stall and enhanced agility.

NADC has been involved in the X-31 since its inception. The centrifuge was used to explore the feasibility of enhanced fighter maneuverability before the program began. Currently, NADC is involved in numerous aspects of ensuring aircraft capability and flight safety. Some areas include flight controls, subsystems, human factors, crew systems, structures, aerodynamics, flying qualites, and materials. These efforts will continue to first flight, in spring, and throughout the two-year flight test program.

continued on page 4

The X-31 experimental aircraft on display at Rockwell International, Palmdale, California. Photo by Joe Barnet

NADC leads the way . . .

NADC has led a multi-Laboratory effort to specify and acquire a *common software tool set* for NAVAIR. This milestone represents the completion of the first phase of a joint effort with NAC, NADEP, NATC, PMTC, NTSC, NOSC, and NWC to develop a NavAir Software Engineering Environment (NASEE). These tools, which are collectively referred to as the NASEE Software Tool Set will be used to support the development, test, and life cycle maintenance of software for embedded Mission Critical Computer Resources (MCCR). The goal is to dramatically improve the state of Post Deployment Software Support (PDSS) across NAVAIR's Software Support Activities (SSAs) by transitioning new software technology developments into actual project usage.

Two complete women's executive leadership program

Susan M. Casagrand and Elaine Picard were among the 245 participants nationwide who recently graduated from the Women's Executive Leadership (WEL) Program.

The WEL Program is a year-long series of supervisory and managerial training and developmental experiences. It is designed to provide high potential women and men with experiences to help prepare them for future opportunities as Federal supervisors and managers. Sponsored by the Office of Personnel Management, it is targeted at the GS-11 and -12 levels.

Training provided by the program includes Public Managers Workshop, Core Management Training, and a Congressional Briefing. Developmental experiences include a 30- and 60- day rotational work assignment and a one week shadowing assignment. In addition to these components, each participant is required to design a one-day workshop on a management topic, conduct executive interviews and complete management readings.

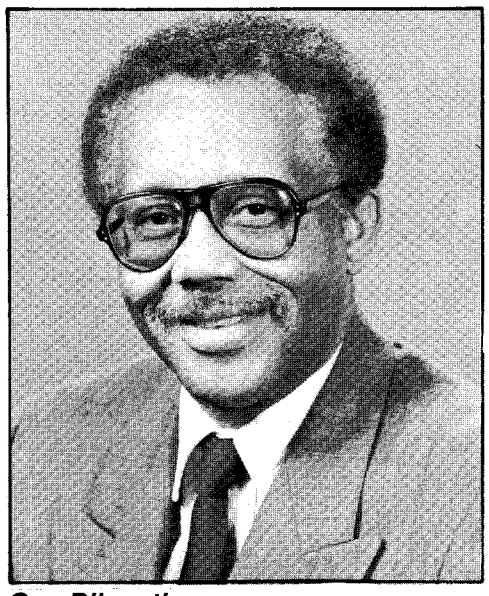
Susan M. Casagrand, a Contract Negotiator, holds a Master's in Public Administration with a certificate in Contracting/Procurement. She completed the 60-day rotational assignment component of the WEL Program in the NADC contracts Department as a Senior Contract Negotiator. She completed her 30-day rotational assignment at the Naval Training Systems Center in Florida in the Contract Management Office where she worked on contractual policy development. Sue's shadowing experience was performed at the Office of Civilian Personnel Management (OCPM) in Washington, DC. The shadowing experience proved to be her most valuable program component because it provided her with visibility among executives in OCPM and the Deputy Assistant Secretary of the Navy for Civilian Personnel/EEO.

Casagrand feels the WEL Program, as a unique specialized training experience, provided her professional and personal growth that has expanded her job opportunities and challenged and equipped her to achieve higher career goals. It also created a nationwide network of friends and professionals from other government agencies and job classifications to utilize as future resources.

WEL graduates Elaine Picard and Susan Casagrand display their "diplomas" while flanked by their respective supervisors, John McFadden, CV-ASWM Branch Head and Frank Drummond, Procuring Contracting Officer.

Command Corner

Captain Curtis Winters
Center Commander



Guy Dilworth
Technical Director

Commander Salutes

Peter Bruno, Donato Russo, Eugene Greeley, and Richard Fillhart (Code 50): For significant contributions to the definition of an effective ASW sonar system for the future.

Sandra Grazioso, Robert Reed (Code 80): For efforts in support of the Airborne Low Frequency Sonar Advance Development Model.

Robert Greenwood (Code 20): For volunteering personal time to present a V-22 logistics briefing.

John Taylor, Paul Poore, Joseph Paone (Code 30), **Richard Hogg** (Code 40): For assistance to the Intelligence Office in insuring cryptographic integrity for the Center Securefax.

Robert Pomrink (Code 03): For contributions to the Office of Civilian Personnel Management for field testing their proposed placement guide for supervisors and managers.

Patricia Oberndorf (Code 70): For co-chairing the Operating Systems Standards Working Group.

Doug Dawson (Code 60): For assistance to the Coast Guard Group Cape May during their Safety Standdown.

Beth Goldberg (Code 20), **Patricia Oberndorf, Phillip Rothenberg** (Code 70): For participation in NADC's 1990 Women's History Month activities.

Diane Heal (Code 09): For assistance provided to Thosani, Inc. during their contract negotiation.

John Tyburski (Code 60): For efforts resulting in a successful Combined Federal Campaign. This year's donations totaled $152,432.95 or 121.9% of NADC's goal.

Elizabeth House (Code 70); **Faye Brown, Sharon Brown, Cariess Babb** (Code 02); **Joanne Owen** (Code 03); **Rebecca Gray** (Code 04); **Elisha Ingram** (Code 05); **AWCS Stephen Markham** (Code 098); **Michael Sutton, Maureen Sullivan, Sidney Williams, Squire Thomas, AW2 Scott Prince, John Bowser, George Banks, William Bailey, AW2 William Baldwin** (Code 10); **CDR Winston Scott, John Hester** (Code 20); **David Morris** (Code 40); **Andrew Ellis, Frank Hirsch** (Code 50); **Jonathan Harding** (Code 60); **Shirley Jones, Desiree Beverly** (Code 70); **MS1 Arthur Mason, Charlie Belcher, Carl Campbell, Teri Berrian** (Code 80); **PR2 Ramiro Flores** (Code 90): For contributions resulting in the success of this year's excellent Black History Month program.

Jerome McGlynn (Code 20): For contributions to the Advanced Air-to-Air Missile program.

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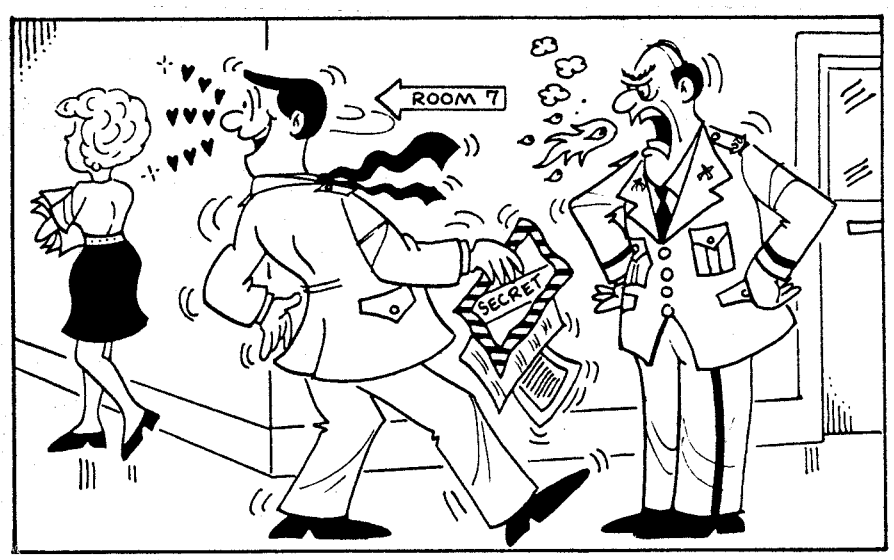

AN INTENSE RELATIONSHIP is sure to develop if you lose a classified document. It is not the most pleasant way to meet new people. For your own sake as well as your country's, be sure to handle all classified material according to regulation.

Photo by NADC Photo Lab

Scouts scout the dynamic flight simulator at NADC --

Cub scouts from Pack 71, Kutz Elementary School and Ron Conley of the Systems and Software Technology Department are enthralled by Alice Colyar's description of how an F-14 aircraft enters a flat spin. Colyar is an engineer in the Life Support Engineering Division.

If the SOC fits

By Robert Janes

One area of the Standards of Conduct (SOC) about which we are frequently asked involves outside consulting work. What sort of consulting work may an employee do on his or her own time? This is a complicated area, and as is often the case with the SOC, I urge anyone with specific questions to consult the office of Counsel on Extension 3000. I thought, however, that some *general* guidance would be helpful.

The Navy SOC instruction provides that while Navy employees are generally permitted to do work on the outside, they may not engage in any outside employment activity, with or without pay, that:

1. Interferes with or is not compatible with the performance of their government duties;
2. May reasonably be expected to bring discredit on the government or the Navy; or
3. Is otherwise inconsistent with the requirements of the instruction.

As far as outside consulting work is concerned, if the company or individual for whom the work being done has no connection with DoD, there is normally no problem. Otherwise, there are two major areas of inquiry—for whom is the work being done, and what is the nature of the work? As far as the first issue is concerned, no one can perform outside work for any company with which he or she is involved on the job. It does not matter what the nature of the outside employment is. If you are involved in any respect in decisions concerning a firm on the job, you cannot work for that company on the outside.

The second issue is much more tricky, and comes up when Navy employees want to do consulting work, either directly as a prime contractor or indirectly as a subcontractor, under a government contract. With very limited exceptions, the procurement

continued on page 7

NADC **Reflector** REFLECTOR
Volume 35
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NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA

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Commander, NADC ..... **CAPT Curtis J. Winters**
Technical Director ..... **Guy C. Dilworth, Jr.**
Public Affairs Officer ..... **James S. Kingston**
Editor ..... **Mary Ann Brett**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Quality action team reports

Little trouble with trouble calls

By Mary Ann Brett

NADC management is demonstrating its commitment to Total Quality Management (TQM) in several areas. One is the formation of Process Action Teams (PATs). When a process is identified for review by the Quality Management Board (QMB), a PAT is assigned to collect and analyze data and recommend changes if needed. To date, three such teams have been formed and several more are in the planning.

In November 1989, the Center chartered a TQM PAT to assess the Public Works trouble call process, identify strong points, and make recommendations for improvements if needed. After an indepth review, the team, led by John Wrigley, made their final recommendations to the QMB headed by Robert Becker.

One area the team identified for preliminary improvement is **education of customers.** "Customers," said Wrigley, "need to know the workload and performance of the trouble call response team. Analyzing the trouble call system was a learning experience for the entire team." He said the data dispelled some preconceived notions of the problems. "For example, after analyzing the 1989 trouble call data, we found more than 8000 calls are handled annually, 62% (nearly 5,000) are completed on the day the call is made and the average overall response time is an excellent three working days. In fact, most jobs are completed in less than two hours."

Wrigley explained, however, these figures do not include time taken to correct contractor roofing related problems or time spent awaiting parts.

Interpreting some of the data, the team noted that hundreds of calls were placed by one-time callers. "We found this led to a lot of duplicate calls for the same problems," Wrigley said.

This information led to a recommendation that trouble calls be made only by designated personnel who will be briefed on the trouble call process. Another recommendation will be that a clearer, more definitive location citing system be effected since many of the column numbers are no longer readable. These and other recommendations must be analyzed and validated by the QMB, and then forwarded for final approval to Center Commander CAPT Curtis Winters before implementation.

More information on this TQM Process Action Team or their data can be obtained from Tom Yeager, PAT team member, on ext. 1950.

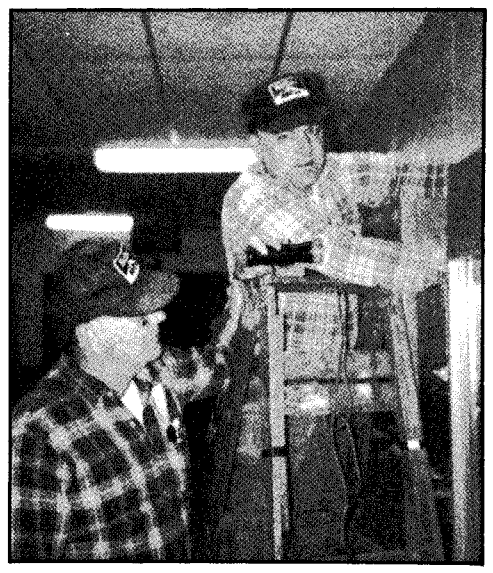

Photo by Mary Ann Brett

George Schaffer and Irv Townsend install circuit for display cabinets.

Photo by Mary Ann Brett

John Mellor, Earle Largent and Irv Townsend take a look at the scheduling sheet.

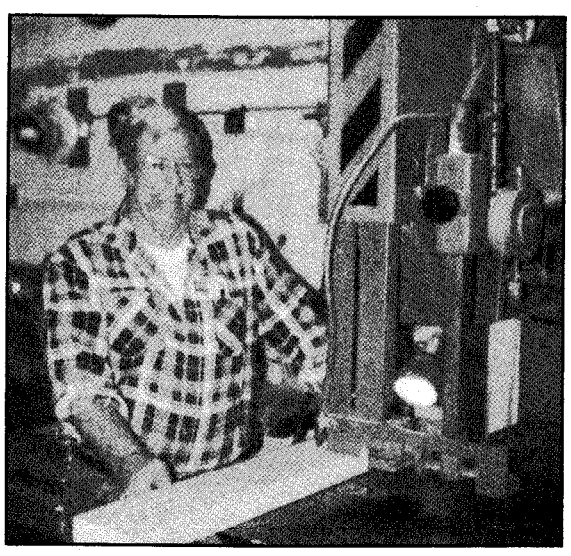

Photo by Mary Ann Brett

Joe Swift in the carpentry shop.

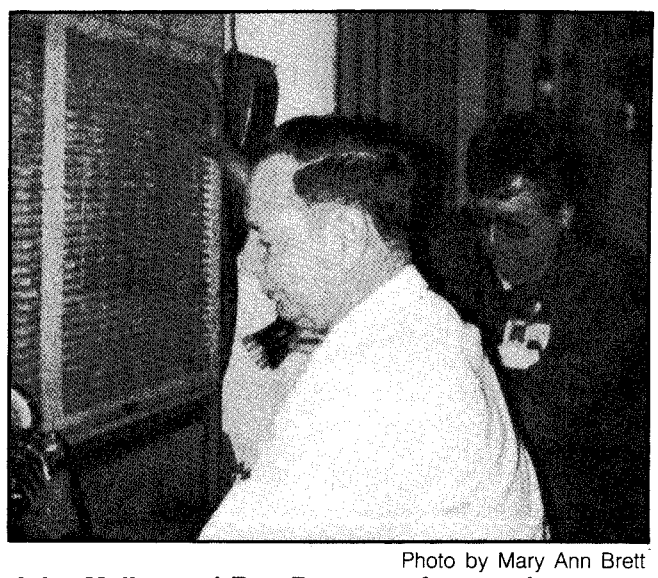

Photo by Mary Ann Brett

John Mellor and Roy Deese perform maintenance on an air conditioning unit.

NAVAIR says 'thanks' for for a super job

On behalf of Admiral R. Gentz, Commander of the Naval Air Systems Command, CAPT G. Speakman visited NADC to present the Air Vehicle and Crew Systems Technology Department (AVCSTD) with a special plaque and letter of appreciation signed by the Admiral.

The letter said, "There is a critical need to meet the ever evolving . . . threats inherent in Naval flight operations. A broad range of activities must be successfully integrated to meet this challenge. This includes exploratory research in the sciences, "hands-on" component and system engineering, and the subsequent development and careful management of logistical support programs. The superior manner in which these . . . efforts have been conducted at NADC stand as a tribute to the ingenuity, skill and resourcefulness of your AVCSTD team . . . Their expertise and professionalism are a credit to NADC and have contributed significantly to the mission effectiveness and safety of everyday Fleet operations . . . SUPER!"

Gathered for the letter of appreciation presentation are Cdr J. Mihalick (OP-506N), Al Hellman, D. Jackson (AIR-531), Larry Lehman, Center Commander CAPT C.J. Winters, CAPT T. Cooper (AIR-5311), David De Simone, LCDR D. Nimmick (OP-506N), Dr. Don McErlean, CAPT G. Speakman (PMA-202), CAPT William Moroney and Technical Director Guy Dilworth.

Enhanced maneuverability X-31 rolls out

Photo by NADC Photo Lab

The X-31 team includes Gynn McConnell, Jeff Calvert, Jim Bethke, Bob Richey, Bob Seltzer, Jim Brindle, Lou D'Aulerio, Jack Eyth, Dave, Rose, Roland Cochran, Larry Lehman, Dave Findlay, Ed Kautz, Dr. Don McErlean (Director, Air Vehicle and Crew Systems Technology Department), Dave Keyser (partially hidden), Tim Springer, Joe Kozol, Doug Bagwell, Lisa Cowles, Rick Gergar, Charles Hegedus, Don Hirst, Shawn Donley (Missing: Sue Smith and Fred Stowell).

continued from page 1

The first of two blue-on-white X-31A's showed off its attributes at rollout. It stands 43 feet long and 15 feet high, with a 24 foot wing span. Takeoff weight is about 14,600 lb. The engine inlet duct contains a moveable lip which rotates down 26 degrees at high angles of attack to maintain attached flow into the single F404 General Electric engine. The canard is swept 45 degrees while the wing is swept 55 degrees inboard and 45 degrees outboard; both canard and wing have a 2.3 aspect ratio. The MBB wing is an aluminum substructure and graphite/epoxy skin. The forward fuselage is also graphite/epoxy, the aft fuselage is aluminum/lithium. But perhaps the most unique equipment on the X-31A are the three carbon-carbon thrust vectoring vanes, mounted aft of the engine exit nozzle. These and the MBB flight control laws, will allow the X-31 to use thrust vector control in both pitch and yaw, and will control the aircraft in post-stall flight.

The speakers at the rollout emphasized not only the flight test objectives including maneuvering at and beyond stall limits, agility enhancement by thrust vectoring, flight path decoupling enhancemnt by thrust vectoring, and rapid deceleration, but also the low cost approach to this program and the initiative required to work across nine time zones, two different languages, and diverse management styles. RADM David N. Rogers, Deputy Assistant CNO for Naval Warfare, Francis M. Cevasco, Assistant Deputy Undersecretary of Defense, International and Industrial Programs, and Hans-Jurgen Weiss, Division Leader Air Warfare German Ministry of Defense stressed the support of both governments in this endeavor. They also discussed the need for continuing international cooperative efforts.

Procurement can be painless

By F. J. Drummond & J. J. Cuorato
(Contracting Office)

You've just been tasked with a new project and you have to decide what computer equipment to use. Your decision may now be simplified and you can get your equipment/software faster and cheaper by using the Advanced Engineering Workstation (AEWS) and Naval Air Software Engineering Environment (NASEE) contracts.

After determining that existing equipment is unavailable and the Central Computer System is inappropriate, you have to decide what type of equipment/software to purchase. Not the least of your concerns is how long it will take to have a competitive contract awarded. The sooner you can get the equipment/software purchased the sooner it will be delivered and you can begin work.

There is a quicker/easier way to purchase equipment and software if you have determined that a Unix-based workstation meets the needs of your project. The typical work, such as writing a specification and reviewing proposals, has been accomplished on the AEWS and NASEE contracts. All you need to do is place an order against these contracts to purchase Sun Microsystems Inc. computers and peripherals (disk drives, tape systems, monitors, printers etc.) and NASEE software products (spreadsheet, program composer, system modeling tool, relational data base manager, statistical tool, Ada design tool, configuration management, software design, document publisher, system specification, project manager, and software analysis tool). The hardware and software can be purchased at significant discounts due to large contract quantity price reductions.

To purchase any of the AEWS or NASEE products, you need to start with a completed purchase request funded to cover the acquistion. Next, you will need to complete a CORPS summary and have the PR approved by the ADP official. All NASEE software is delivered 30 days after we place the order. The AEWS is delivered and installed within 90 days after we place the order. Assuming it takes approximately one month for the PR to travel from your desk to the Contracting Officer, you can have an AEWS installed complete with NASEE software within four months of the start of the procurement process.

Specific contract-related information including pricing is available from Carl Ruzicka at ext. 3576.

Who they are; what they do

By JO2 Michael Delledonne

With more than five years in the Navy, you would think your job wouldn't change much from duty station to duty station. But when you're coming from sea to shore duty that's not always the case. That's what happened to Aviation Anti-submarine Operator (AW) Second Class Jeff Solomon.

The 23-year old from Milton, Pa., realized that life on the Center and life in the Fleet are two very different worlds. "You have to learn to pace yourself here a little bit," said Solomon. "You're dealing with development cycles for projects that could take years to get into Fleet S-3A/B Vikings. At sea everything is hurry up and get it done now, so there definitely was an adjustment period."

"My job is to listen to what the engineers come up with and see if it will work or not in actual deployment conditions," explained Solomon. "I really give them a Fleet perspective of things."

Although only here for three months, Solomon said he is impressed with the work of the Center. "The technology they come up with is really amazing. You're just in awe of some of the engineering accomplishments."

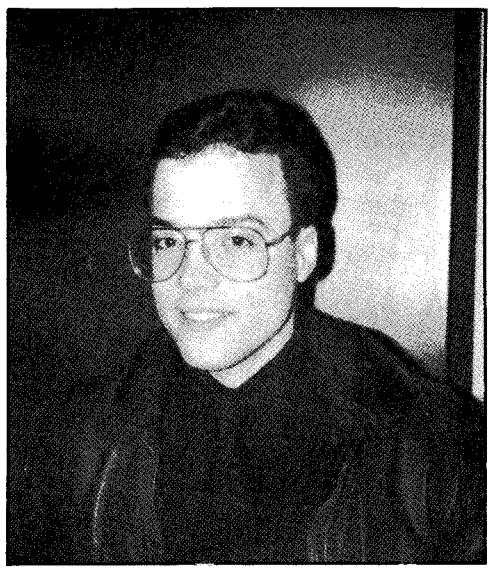

Photo by JO2 Michael Delledonne
AW2 Jeff Solomon

Commander Salutes

continued from page 2

Charles Koch (Code 70): For briefings and tours to the Aurora Software Development Unit during their visit to NADC.

John Reeves, Larry Lehman, Daniel Lorch, Robert MacKrell, Dale Uyeda, Michael Troyanosky, Albert Simkins, Kenneth Bullard, Stephen Filarsky, David Rose, Harold Green, Harold Penn, Jeffrey Lewis, Douglas Dawson, James McElhenney, Lyonel Finizie, Evan Nosel, Robert Hay, Robert Richey, Roy Anderson, Mark Lilly, Timothy Springer, James McNamara, Craig Wood, Joseph Bebey, Eileen Dobrowolosky, Dorothy Wilson, Helen Hummel, Janettarose Greene (Code 60); **Albert Querin, William Walker, Edward Emery** (Code 70): For assistance to the Naval Air Systems Command during evaluation of the FEWSG Replacement Aircraft Program.

Barbara Ward, Judith Scott (Code 03); **Maureen Sullivan, John McFadden** (Code 10); **Bereket Tanju William Sapp** (Code 40); **Michael Rankin, Angel Carreras** (Code 50); **Dr. John DeLuccia, Dr. Kenneth Green, Jacob Eyth, Carl Pierce, HMC Duane Murray** (Code 60); **J. Grant Bunting, George DeLisi** (Code 70); **Kenneth Nameck** (Code 80); **Richard Lancaster, Lt. Alan Byrd** (Code 90): For assistance in the production of our recruitment video.

Edgar Reed, Walter Beamer (Code 20): For outstanding hospitality and briefing to the Wright-Patterson Pilot's Associate program.

John Johns (Code 60): For volunteering personal time to present briefings to NAVAIRSYSCOM Reserve Unit 0993 on V-22 Air Combat Maneuvering and V-22 flying qualities.

Michael Nastasi (Code 40): For technical competence in assisting the Boeing Corporation.

Women in science and engineering get WISE

Photo by Cathy Burian

Joan Humphries speaks at NADC's first WISE meeting.

By Mary Ann Brett

A chapter of the national organization of Women in Science and Engineering (WISE) has been established at NADC. In existence since 1978, WISE is an interagency organization representing women scientists and engineers (S&E's) throughout the federal government.

Supported through the EEO office and the Federal Women's Program (FWP), the chapter's charter includes objectives to sponsor training, education and information programs to provide maximum opportunity for women S&E's to advance to their full potential; to encourage women to seek employment opportunities at the Center; to identify any formal and informal policies which might adversely affect their career opportunities; and, to support activities designed to recruit and retain women S&E's.

Volunteer administrators include Mary Donnellan, Chairperson, Beth Goldberg, Vice-Chairperson, Lisa Cowles, Secretary, Liz Piergiovanni, FWP representative. Still in the formative stages, NADC's chapter has made plans to be represented at the national meeting and is performing data analysis on the Center's female S&E population.

WISE recently hosted a luncheon meeting highlighted by an address from a national representative, Joan Humphries of the National Science Foundation. Meetings are open to all female S&E's at NADC. If you are interested in more information, call Mary Donnellan on ext. 2151.

Thrift Savings Plan: good deal for many

American Forces Information Service

Looking for a high-yield, safe long-term investment? Examine the government's Thrift Savings Plan during the open season starting May 15.

Open season is a twice-yearly period when civilian employees can join the plan; stop, increase or decrease their contributions; or move their money among the plan's three funds if they are members of the Federal Employees Retirement System. All civilian employees should receive a booklet explaining the plan and their options; copies should be available at installation civilian personnel offices.

"This is a retirement savings plan; the money is not liquid — you can't just pull it out whenever you want. But for those who are looking for an investment, it's a good deal whether they are in the FERS or old Civil Service Retirement System," said Tom Trabucco, spokesman for the Federal Retirement Thrift Investment Board.

Most federal employees are eligible for the plan; some new civil servants and those returning to government service may have to wait six to 12 months before they're allowed to enroll. Trabucco said the plan can supplement the retirement income of CSRS employees. FERS employees, on the other hand, get a different deal because the plan was started to provide a significant portion of their retirement income.

The government automatically opens an account for new FERS employees six months after they are hired. It contributes the equivalent of 1 percent of the employee's salary to the account, even if the employee contributes nothing.

The money snowballs when a FERS employee participates. The government matches dollar for dollar the first 3 percent of basic income a FERS employee invests. For the next 2 percent of income invested, the government gives 50 cents for each employee dollar.

"Thus, FERS employees who put in the full 10 percent of income they're permitted to contribute every year actually save an amount equal to 15 pecent of their income — and that's before any earnings are considered," said Trabucco.

Despite the fact that many FERS employees are younger and in lower pay grades, slightly more than half of them participate in the savings plan.

According to the Internal Revenue Service, employee and government contributions are tax-deferred income. Tax deferral works like this: Susan Saver's basic annual pay is $26,000, and she contributes 5 percent of that ($1,300) to the plan. Her contributions are subtracted from her reportable income, which becomes $24,700. In her tax bracket, this reduction saves her about $200 in federal taxes.

Her contributions, the government's and the earnings from both become taxable only when they are withdrawn from the account, presumably after Susan retires.

A $200 tax break may not seem much of an incentive, but Susan has much more working for her than that. Because she is a FERS employee and receives matching government money, her account doubles in value immediately and earns yields on $2,600. If in another investment plan earning 9 percent compounded, her $1,300 would take about eight years to double — or longer if the plan is taxed. Susan also may reduce her taxes further by contributing up to the maximum 10 percent yearly.

As a FERS employee, Susan also has a chance to earn far-above-average returns, depending on her tolerance for risk. The Thrift Savings Plan consists of three funds: U.S. government securities, common stocks and bonds. FERS employees may choose where to place their savings plan money, although at least 40 percent of their 1990 contributions must go toward government securities.

The risk-free government securities fund is guaranteed by the U.S. government and earned 8.81 percent in 1989. The bond, or fixed income, fund offers the chance of higher returns, but flows with bond market forces; it earned an annual 13.89 percent last year, but started in 1990 with a January loss of 1.38 percent. The stock fund is the riskiest, potentially most profitable one; investors posted a 31.03 percent gain for 1989 and a 6.59 percent loss for January. Employees who want to invest in bonds and stocks must sign a statement that they know the risks involved.

Slightly more than 20 percent of CSRS employees invest in the savings plan, but they are limited to 5 percent of their income and can contribute only to the government securities fund. Also, they receive no matching government funds.

"Some CSRS employees believe the plan is a bad deal because the government doesn't match their contributions and they can only put their money into the government fund," said Betty Hawley, an employee relations specialist in the Pentagon. "It also seems people get together and either talk each other into participating or talk each other out of it. We have offices where everyone enrolls and offices where no one enrolls."

Trabucco and Hawley both noted these CSRS employees may be short-sighted: CSRS employees' investments are tax-deferred the same as FERS workers'. And while the government fund's 8.81 percent 1989

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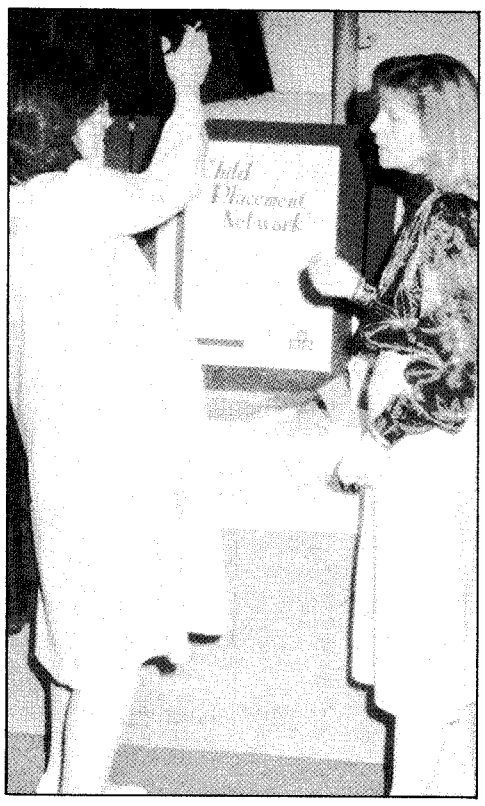
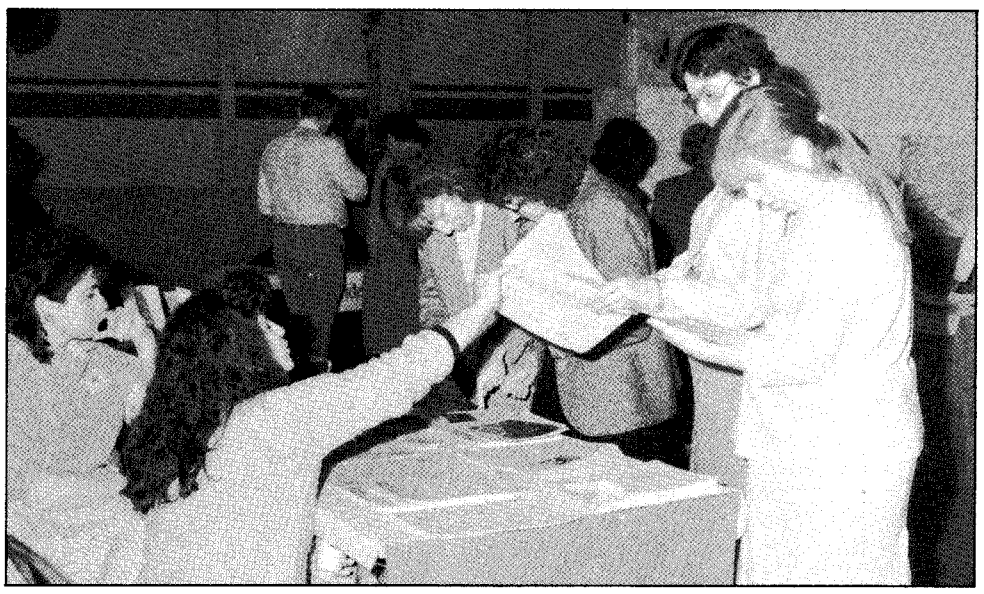
FWP cares about day care



The Federal Women's Program Committee and Eileen Craig, Secretary/Clerical Recruitment Coordinator sponsored the Center's first Dependent Care Information Display Day in Hangar 1 of Bldg. 2. Approximately 15 child and adult day care facilities, including NADC's own summer camp program, display information and answered questions for hundreds of interested personnel throughout the day.

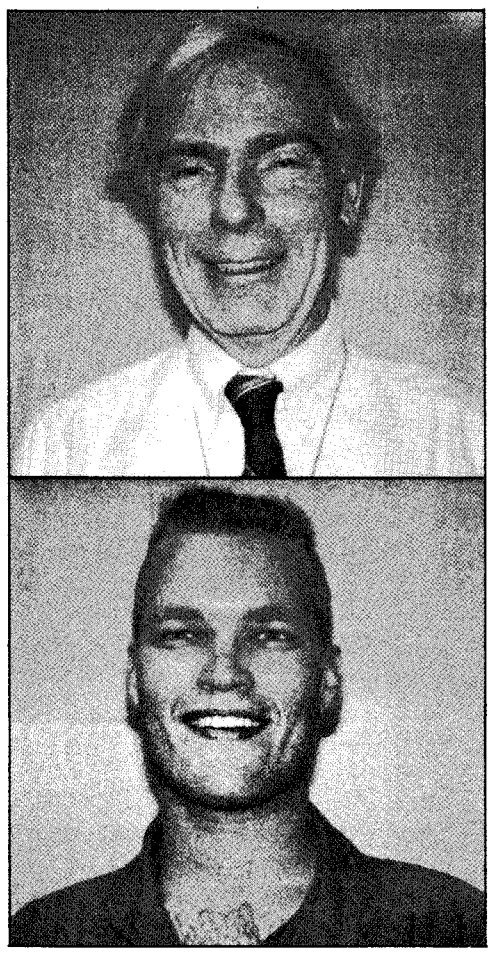


VIEWPOINT

Question: Why do you/ don't you buy U.S. Savings Bonds?

Photos by: Margaret Vigelis

Prepared by: Margaret Vigelis



ED LUCAS: Bonds are too difficult to cash in time of need, not many financial institutions will cash them. To buy bonds, other than by payroll deduction, is also difficult. There are only a few banks that handle them, in fact, not even our Credit Union sells or cashes them.

AT2 BRAD LE VAULT: Bonds are an investment in America, that's the first reason I would buy a bond. Their interest rates are competitive and remain constant. Bonds are also easy to buy by an allotment each payday. Now, there is a bond that is tax-free when used for educational expenses.

NORMA STROHMEIER: Their interest rate is decent and the payroll deduction method convenient. The deduction can be as little as a few dollars a pay period or as high as your budget will allow. They are a much safer investment than the market right now. You can file them away and forget about them until a rainy day or your retirement.

GLORIA HEARN: I don't buy savings bonds because I feel that they do not pay a maximum amount of interest that I could get elsewhere in a mutual fund or money market fund. To get the maximum amount of interest, I would have to hold the bonds for 5 years, and even though I would be investing in America, I still have to pay taxes on the interest earned.

HARRIET FEDER: Bonds are a great way of saving, especially when deducted from your pay. You don't miss the money and they really add up. I have found the interest is competitive with other forms of savings.

Savings bonds now tax free for education

Get ready for tomorrow's college costs. If you have children — or if children are in your future — it is not too early to plan for their education. The reason is simple. Estimates are that the average cost for a single year of higher education by the 2006 could range from $17,000 to as high as $37,000! While family incomes also may increase, for most Americans, only a savings program begun today can make the dream of higher education a reality.

Fortunately, United States Savings Bonds can make saving for higher education easy. Better still, Savings Bonds now offer tax-free interest to many parents using them to pay for college tuition and fees. They can transform an impossible dream into reality. But to make that dream a reality tomorrow, a decision must be made today.

U.S. Savings Bonds:
The Education Benefit

Beginning in 1990, the interest on Series EE Savings Bonds — for may years popular among parents for college saving, and already exempt from state and local income taxes — may be exempt from from Federal income tax if you pay tuition and fees at colleges, universities, and qualified technical schools during the year you redeem the Bonds. And the exemption applies to more than just the education of your children — it can apply to your own higher education as well.

These are the same competitive Series EE Savings bonds that, when held five years or longer, earn market-based interest or guaranteed rates — whichever is higher. They are the same EE Bonds you can purchase through most commercial banks, many saving institutions, and through the convenient Payroll Savings Plan offered by tens of thousands of employers. And they are the same Savings Bonds that are backed by the full faith and credit of the United States and can be replaced, free, if lost, stolen or destroyed.

How Does It Work?

The new educational benefit is straightforward, but there are restrictions. So read the following information carefully. If you have any questions, write to the agencies listed at the end of this brochure.

To qualify for the interest exclusion, the Bonds must be issued after December 31, 1989, to individuals who are at least 24 years old. If the Bonds are intended to benefit dependent children, they must be issued in either one parent's name or both parents' names. The Bonds can not be issued in the name of a child. The Bonds must be redeemed in a year the Bond owner pays qualified educational expenses, which are tuition and fees, to an eligible educational institution. Room and board are not qualified educational expenses. Eligible educational institutions include colleges, universities, technical institutes, and vocational schools.

The interest on qualifying Bonds will be fully exempt from Federal income tax only if the qualifying tuition and fees paid during the year are equal to or more than redemption proceeds (interest and principal) of qualified Bonds, regardless of how the qualifying Bond proceeds are actually used. If tuition and fees are less than the value of the Bonds cashed, the exemption is proportional to the percentage of the value that was used for tuition and fees. For example, if you redeem $10,000 worth of Bonds during the year but tuition and fees total only $8,000, 80 percent of interest income is exempt from Federal income tax.

Income limits apply to the year of redemption of the Bonds. In 1990, if you are single with an income of $40,000 or less, or a married couple filing a joint return with an income of $60,000 or less, you may be entitled to a full exemption. (Married taxpayers filing separately are not eligible for the exemption). No interest is eligible for exemption for single filers with incomes over $55,000 or for married couples filing a joint return with incomes over $90,000. Single taxpayers with incomes between $40,000 and $55,000 and joint return filers with incomes of $60,000 to $90,000 will be able to exclude some but not all the Bond interest. These income levels will be adjusted for inflation in years after 1990.

How Fast Will My Educational Savings Grow?

The key is regular saving, made easiest through the Payroll Savings Plan offered by your employer. Payroll savings is a time-tested method of automatic, regular savings that has allowed millions of Americans to save more than they ever thought they could.

The following chart gives some examples. Remember that Bonds held five years or more earn market-based rates that can be higher than the guaranteed rate, so the figures in the chart are the *minimum* you can expect to accumulate.

Child's Age Now*	Value † at Age 18 Based on Monthly Allotments of: $ 50.00	$ 100.00
1	$17,356.08	$34,712.16
6	10,328.96	20,657.92
10	6,025.72	12,051.44
12	4,226.88	8,453.76

*Current tax law requires children age 2 and above to have a Social Security number.

†Assumes annual interest rate of 6 percent (current minimum rate). Rate could be higher.

For more information on Savings Bonds and the new educational benefit, write to:
Office of Public Affairs
U.S. Savings Bonds Division
Washington, DC 20226

Thrift Savings Plan: good deal for many

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earnings weren't as high as the stock and bond funds, that return was both risk-free and more profitable than many other possible investments.

FERS employees are vested in the savings plan, meaning their contributions and the government's are theirs to take if they leave federal service. The exception is their agency's automatic annual 1 percent contributions — most employees are vested for this money after completing three years of federal civilian service; non-career Senior Executive Service members and political appointees own the money after two years. CSRS employees are always vested, because the only contributions are theirs.

Employees leaving federal service before becoming eligible for either immediate or deferred retirement (generally, employees with less than five years' service) must transfer the money into an individual retirement arrangement or other eligible retirment plan. They cannot leave their money in the plan or select any other withdrawal plan. Employees leaving federal service who are eligible for deferred retirement can leave their money in the plan until retirement, transfer the money into an IRA or receive an annuity.

Because of the tax-deferred status of the savings plan, employees can't withdraw their money while they are still working for the government. However, they can borrow against their accounts to purchase a primary residence or to meet certain financial hardships.

The booklet *Thrift Savings Loan Program* explains the requirements and can be found in most personnel offices. Loans must be repaid through payroll deductions. Employees may be able to reschedule payments in the event of hardship. If they cannot meet the new payment plan, the Thrift Investment Board will declare a "distribution" from the account equal to the unpaid loan balance and unpaid interest. Such distributions are subject to income tax — and a 10 percent IRS early withdrawal penalty.

For full details about the Thrift Savings Plan and open season, contact Dottie Kirkpatrick, Code 031, ext. 2367.

Length of Service	Payment Options
Not entitled to retirement benefits (generally less than five years of service)	• Transfer balance to an IRA or other eligible retirement plan. You cannot keep your account in the Plan.
Five years or more, eligible for deferred benefits, but not eligible for immediate retirement	• Transfer balance to an IRA or other eligible retirement plan • Receive a life annuity (or defer its commencement until later) • Defer payment until the date you are eligible to receive retirement benefits or to a date thereafter. Can be paid in a lump sum or a series of equal payments
Five years or more, eligible for immediate retirement. Also, employees eligible for certain disability or workers' compensation benefits	• Transfer balance to an IRA or other eligible retirement plan • Receive a life annuity (or defer its commencement until later) • Receive immediately or at a later date a lump sum or a series of equal payments

Two complete W-E-L

continued from page 1

Elaine Picard is the Advanced Systems Project Engineer for the CV-ASW Module Program and has a Masters Degree in Electrical Engineering. Picard completed the 60-day rotational assignment in the ASW Systems Department as Hardware Project Engineer for CV-ASWM. Her 30-day rotational assignment was at the Naval Sea Systems Command where she worked under the Project Manager of the CV-ASW Module Program. The Tactical Readiness Division, OP-731, hosted Picard for her shadowing assignment.

In addition to the formal leadership and managerial training provided by the WEL Program, Picard felt the opportunity to work with high level managers and observe the successful application of different decision making and managerial techniques was extremely valuable. Through her assignments at NAVSEA and CNO, she has a better understanding of the factors involved in decisions made at these levels and how they ultimately affect Center Programs.

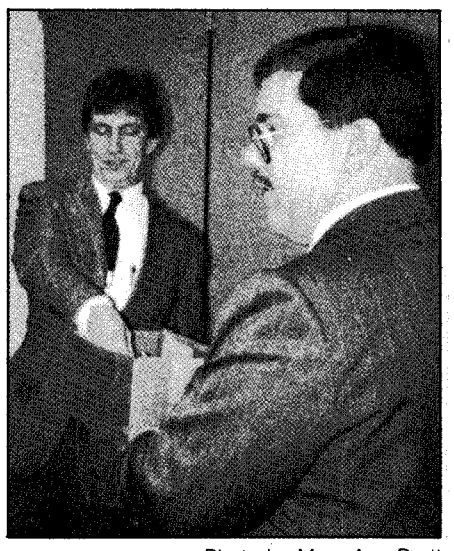


Photo by Mary Ann Brett

Donors drawn for prizes

As Phil Horne, Chairman Civilian Welfare and Recreation, holds box containing the names of March's blood donors, Ron Young, NADC's Civilian Personnel Officer, draws the winning names. The winners were: first place, Bob Janes (Code 095) a compact disc player; second place, Bill Myers (Code 90C) a WordSpell; third place, Cathy Burian (Code 8132) a Walkman radio.

If the Soc Fits

continued from page 2

regulations prohibit the government from dealing directly with any company owned or controlled by government employees. In addition, there are criminal statutes that forbid government employees from certain representational activities involving the federal government. In most cases, either or both of these things will prevent government employees from dealing directly with the government in a contractual capacity.

What about dealing as a subcontractor, providing consulting services to another company for its use on a government contract? This is for the most part a grey area. It is NADC policy not to permit any NADC employee to be involved in any way on an NADC contract, and thus, even though you may work in one department and the contract is for another department altogether, you cannot perform that consulting work. On the other hand, so long as the work does not violate the representational restrictions mentioned above, it may well be permissible if it is on a contract for a civilian agency. Where the contract is for another DoD activity, this may or may not be permissible depending on all the facts.

This is only meant to be a very general summary. There are a host of other rules that also might come into play—such as the rule forbidding the use of inside information for one's personal gain. As I said at the outset, this is a difficult area and I recommend that anyone proposing to do outside consulting work check with our office beforehand.

See you at the fair

In conjunction with the Armed Forces Day Open House, NADC is holding a science fair on Saturday, May 19, in the Center Dining Room (Barnaby Room) starting at 0930. Sponsored by the Air Vehicle and Crew Systems Technology Department EEO committee, the competition is geared to juniors and seniors in Montgomery and Bucks counties. Only those Philadelphia schools that are members of the Federal Junior Fellowship Program were invited to participate.

Eight competition categories were offered: mathematics, engineering, environment, physics, energy, chemistry, and computer and life sciences. To date, schools including Cheltenham, St. Joseph Prep, LaSalle College High School, William Tennant and Archbishop Wood have entered a total of thirty-five projects.

The overall winner will receive a plaque and a summer job offer (Children of NADC employees are exempt from the job offer). The NADC Women in Science and Engineering chapter has offered a $200 bond to the outstanding female participant. Category winners will also receive plaques to be presented at a luncheon on Wednesday, May 30, in the Barnaby Room. For more information call Barbara Kempf on ext. 7241.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

'90 softball season begins without a strike

By Jack Eyth

While the major leaguers were haranguing over how many hundred-thousand-dollars rookies should be paid, and what year free agency should be allowed, the NADC softball league got quietly underway following the steady-handed leadership of commissioner Mark Lilly.

Vowing to make this the best season ever, Commissioner Lilly initiated the 1990 13-Team league (down 2 teams from 1989) by instituting changes such as the "strike pad" for high arc pitching, and larger fines for digressions such as "Failure to provide League Support" ($25.00) and "Throwing trash over fence into Dumpster ($5.00). The latter fine is also known as the "Guzzler Rule" which was named after the now-defunct Gutter Team which invented and perfected the art of trash bag tossing.

This year's season gets underway with a big boost from the Recreational Services Division whose people are renovating Tyler, Inertial, and two additional fields. Players are ecstatic to finally be playing on fields with good drainage and true bounces. Thanks go to Ron Brewer whose group found the money that allowed the improvements to be made.

And now for my early season picks: Odds-on favorites to repeat as champions are the Misfits. Barring injuries to key players, this team still possesses the sticks (Price, Hynes, Swiski) and pitching (Dick, Swiski) to dominate the league. If you're updating your rosters, pencil in Stan Zajdel (formerly of the Bandits) to this already loaded lineup.

Expected to give the Misfits a run are the perennial challengers, the 8th Inning. Fred Kuster must still be smarting from last year's forfeit in the Championship Series. He's augmented his roster with several new players including Chuck Lagrossa, John Lommack and "forever young" Bill Mulley, Sr.

Other teams which appear to have improved are the Come-back Granfalloon (with Tom Weiss and Micky Ruddock) and the Renegades, who have re-signed former Misfit pitcher Joel Wexler.

The Intimidators are back with a solid lineup and a new manager, Tom Munyan. Having lost quality pitcher Cy Green, it will be interesting to see if this team can win the regular season as they did last year.

The rest of the league is a grab bag, although a "leaner, meaner" one at least. With the disbanding of the Bandits and Guzzlers, several weak teams have picked up good players including the Life Supporters (Geyer, Reichert, Eyth); and the Rebels (Brodine, Janinek and Malitsky).

All in all, with fewer teams (13), more games (15), two new fields, and a better distribution of talent, this decade-opening season may prove to be somewhat surprising. Stay tuned!

W&R Golfers tame McGuire's Falcon course

By Pete Brown

Sixty-five W&R golfers hooked and sliced their way across McGuire AFB's wind-swept links on March 22nd.

Playing a "merciful" Scramble format helped loosen old "muscle memories," including those at the 19th hole!!!

In the handicap division, first place was captured by J. Bowes, J. Orr, G. Ogilvie and N. Goodenough with a net 58. One stroke behind (at 59) was J. MacKenzie, B. Tausek, and J. Markow. B. Jones, B. Pohle, J. Predhome and S. Cloak captured 3rd with a net 60.

Low gross division honors went to the steady team of R. Muller, B. Harvey, J. Wolfe, and R. Turzanski with a 67. 2nd place (68) went to B. Whiteman, C. Swatchick, B. Lehman, and F. Sheedy.

Individually, closest-to-the-pins went to B. Hines, 15 ft. on #2; P. Brown, 31 ft. on #7; Tausek, 3 ft. on #11; and, J. Costanzo, 8 ft. on #16. Longest drives (into the wind!!) went to boomers S. Neumann on #6 (268 yards), and Hines on #17 (268.5 yards)!!!

W&R's 4th outing scheduled at Locust Valley will be held on Tuesday, June 12. All other dates still look good!!

Mixed League Bowling News

By Tom Reiter

Plans are underway for this year's banquet to be held on Friday night, June 8, at the Warrington Country Club. This year **Lois Savage** brings her "hostess with the mostest" role to organizing our banquet. Everyone is looking forward to a special evening.

The votes are in. Next season's League Officers have been elected. Our new President will be **Jim Campana**; Vice President — **Jeff Irvin**, Treasurer — **Tom Reiter**, Secretary — **Lorrie Dunn**, and the three elected Executive Board members — **Donna Morgan, John Bowes**, and **Rick Yeager.** Congratulations to all, it looks like we will again have a strong administration.

An item that I missed last month was to congratulate two of our bowlers on their engagement. **Scott Fowler and Gina Virga** are presently planning their October wedding; we wish them both the very best. **Mary Williamson** bowled a triplicate (three identical scores) recently, it's not exactly gossip, but Mary will do almost anything to get her name in the paper.

Check out the standings. The Magic Markers continue to maintain their slim lead in the A division. Captain **Larry Sicher** is about to switch hands on his whip as he comes down the stretch fighting off the Red Winos, the Warveyhallbangers, and our first half champion Gutter Dusters. In the B division, **Jack Horning's** surprising Screwballs, sparked by **Elsie Appel** and **John Ryan, have taken on the first half champion Goofers, and are peeking over their shoulder at Rick Yeager**'s From The Gutter, but are still leading in that five horse race . . . stay tuned.

League standings and each team's individual high games as of April 1:

A Division		B Division	
Magic Markers	34.0-14.0	Screwballs	34.5-13.5
Red Winos	32.0-16.0	From The Gutter	33.0-15.0
Warveyhallbangers	27.0-21.0	Goofers	30.0-18.0
Gutter Dusters	26.5-21.5	Alley Cats	29.5-18.5
Nine Pins	24.0-24.0	Spare Us	28.0-20.0
Destroyers	24.0-24.0	Blue Light Special	26.0-22.0
Steve's Side Show	22.0-26.0	Rolling Thunder	23.5-24.5
Lucky Strikes	22.0-26.0	Bullshooters	23.0-25.0
Eleventh Frame	19.0-29.0	Les Champigions	23.0-25.0
Big Spenders	18.0-30.0	Ten Pinners	20.0-28.0
Neiners	15.0-33.0	White Winos	16.0-32.0
Dynamic Duos	12.0-36.0	Who Cares	14.0-34.0

Jeff Irvin (223)
Mike Dent (267)
Hal Wyzansky (229)
Wes Gleason (256)
Jim Campana (224)
Jim Toll (199)
Steve Jerdan (230)
Art Duhaime (214)
Allen Goldstein (197)
Neal Polin/Joe Catto (214)
Chuck Youngfeldt (198)
Nick Doto (224)

Jack Horning (234)
Rick Yeager (247)
Al Knobloch (234)
Kevin Ryan/Jack Eyth (235)
Dick Coughlan (221)
Bill Bradley (209)
George Delisi (224)
Bill Halpern (198)
Ed White (208)
Joe Emperly (226)
Rick Eppright (245)
John Bowes (221)

Lois Savage (192)
Mirian Lentz (201)
Granny Tierney (216)
Mary Vaughn (210)
Linda Stickney (224)
Lorrie Dunn (229)
Judy Jerdan/Karen Baker (180)
Lisa Sanelli (189)
Helen Halko (210)
Helen Catto (214)
Anne Reichert (178)
Gina Virga (219)

Elsie Appel (210)
Char Pohle (210)
Lorraine Reidinger (200)
Kathy Barnes (208)
Donna Morgan (186)
Barb Dilemmo (204)
Sharon Robinson (200)
Eileen Cunnane (204)
Betty Beans (192)
Jacque Emperly (196)
Terese Wells (187)
Barbara Fleischut (202)

Summer day camp nears

Parents, your worries are over. Plans are being finalized for the organization of this year's Summer Camp Program in the Shenandoah Woods Community Youth Center. The full-time day-long program will be offered Monday through Friday to accommodate working parents. This year's theme, "Many cultures make up our world," will focus on different countries and their customs. The children will participate in field trips, picnics, trips to the pool, arts and crafts, plays, sports and educational programs. For additional information, phone the Youth Center at ext. 7233.

J. BARTON 5021

NADC Reflector

Volume 35 Number 5 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. May 1990

In This Issue:

NADC hosts 2nd int'l ASW software forum

Photo by NADC Photo Lab

Representatives from Australia, Canada, Netherlands, Japan, the United Kingdom and the United States gathered outside the Center's front door during a break from the ASW software forum.

More than fifty representatives from the international VP software support community took part in the 2nd Multi-National ASW Software Forum held at NADC 26-28 March 1990. Foreign contingents from Australia, Canada, Netherlands, Japan, and the UK presented their unique methodologies of supporting mission critical software and provided a broad spectrum of background experiences during the open discussion periods. Also very well received were the sessions chaired by NADC personnel on the USN ASW software support system. In particular, the following are to be thanked for their excellent contributions: LCDR B. Gritte, D. Birnbaum, J. Camaioni, D. Chun, G. Davies, D. Dummeldinger, M. Elser, K. Geist, R. Jankiewicz, C. Koch, J. Santini, D. Siano, and T. Weaver. A special thank you goes to Sqn Ldr Nigel Goodenough and Maj. Graeme Ogilvie for all their tireless efforts in setting up and administrating the week's activities. The unanimous opinion at the end of the Forum was that it had been an overwhelming success and plans are already underway to hold the 3rd Multi-National ASW Software Forum at CFB Greenwood, Nova Scotia in May 1991.

Clapper returns from 1 yr assignment

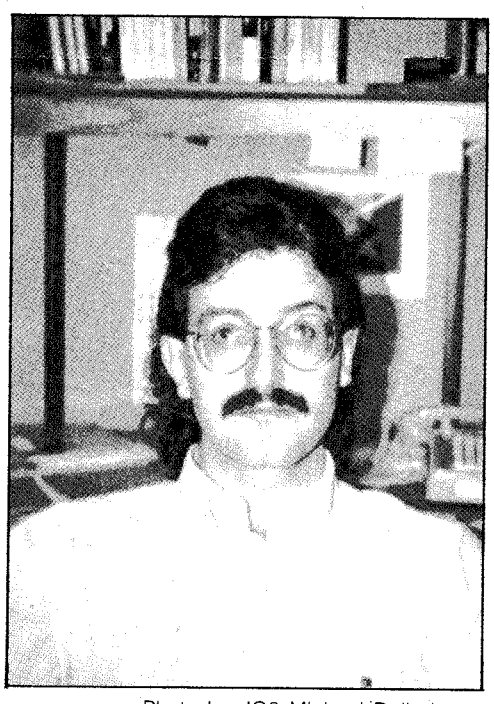


Photo by JO2 Michael Delledonne

Brian Clapper

By JO2 Michael Delledonne

Brian Clapper, of the Systems and Software Technology Department, recently completed his one-year tour as a resident government affiliate with the Software Engineering Institute (SEI) located at Carnegie Mellon University in Pittsburgh, PA.

Working on "Serpent," an experimental user interface management system which defines a software architecture that separates the user interface from the rest of the software, Clapper timed his arrival just right. "I got a taste of both worlds because I was there for part of the research phase and part of the development phase," he said. "It was like being thrown into a high level research and development environment. You work with really stellar people, in top notch facilities; that really helps your professional growth."

The biggest advantage for Clapper was the information he was able to bring back to the Center. "The project I'm working on now, the Navy's Next Generation Computer Resources (NGRC), takes what I've learned and applies it immediately," he explained. "The Navy is developing industry-based computer software standards, and examining user interface standards is part of that work. My training ties in directly with what we're trying to accomplish."

Though his enthusiasm was hard to hide, Clapper said he would recommend SEI to any software engineer. "It was just a tremendous amount of fun. I had access to all kinds of information that benefit me and the Center. I worked with some incredibly talented people and that can only help me professionally."

ASW still top priority in Navy

Naval warfare experts and other prominent authorities met to discuss the importance of antisubmarine warfare (ASW) in today's Navy at a Naval Institute symposium in Washington February 27.

More than 600 civilian, military and industry leaders from all areas of ASW attended the conference. The keynote speaker, Vice Chief of Naval Operations Admiral Bud Edney, emphasized the importance of advancing ASW technology stating, "The reduced likelihood of war with the Soviets allows us to concentrate on perfecting the capabilities of today's combined ASW forces while placing greater emphasis on research and development." The VCNO emphasized the need to expand, through technology, the Navy's capability to detect, track and localize the increasingly quiet, more capable submarine fleet from the USSR and third world nations.

Rear Admiral Thomas A. Brooks, Director of Naval Intelligence also addressed the symposium and commented on the Soviet submarine force developments. He contrasted their scrapping of obsolete ships with a vigorous building program of modern submarines. "The press is replete with stories and occasional pictures of Soviet surface ships and submarines being towed away to be scrapped. In 1989 and through February 1990, more than 30 Soviet submarines have suffered this fate. All were over 30 years old and almost all came out of mothballs."

Brooks estimated that more than 100 diesel and two dozen nuclear submarines will be scrapped by 1995 but added, "they continue a submarine construction and modernization program which will leave the Soviet submarine force of the mid-1990's, although reduced in numbers, a significantly more capable force." The Soviet's high-paced submarine ship-building program produced one more submarine last year than in 1988.

continued on page 6

Center's closed landfills investigated

According to a memo released by Chief Staff Officer CAPT James L. Murphy, during the next few weeks, another phase of the continuing investigation of the Center's closed landfills will begin. This phase will involve drilling a series of holes, known as "confirmation boreholes," to verify the location of each site and to further confirm any data developed during the previous studies.

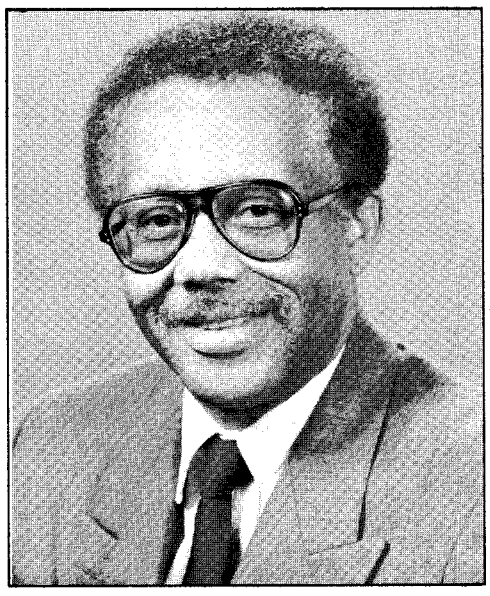
The Captain explained that in all environmental studies, certain procedures must be followed to guarantee worker safety and health. This project is no exception. As a precaution, the field investigation team doing the drilling will wear white "Tyvek" suits, rubber gloves and boots, and full-face air-purifying respirators. Use of this level of personal protection is dictated by the Occupational Safety and Health Administration even though we anticipate no releases.

As a safety precaution to Center personnel, the patrol road (jogging path) and gate #17 at the rear of the Center, off Jacksonville Road, will need to be periodically closed. The drilling

continued on page 7

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

To all hands:

Total Quality Management

". . . a journey of continuous improvement . . ."

This Center has embarked upon a journey of continuous improvement in our products and services along with a focus on customer satisfaction. Initial steps along that path have demonstrated that substantial changes in the processes we use can be made that will benefit our sponsors as well as our employees in a meaningful way. At this point we have had successful Process Action Teams (PAT's) in the areas of Travel Reimbursement, Public Works Trouble Calls, and Small Purchase. These actions form the basis of the next phase of Total Quality Management (TQM) evolution at the Center. In essence, we are passing from an orientation phase to one where fundamental changes in the Center's processes will continue to allow improvements to our culture.

We formed the TQM Steering Group to develop an approach and guide us through the formative orientation phase of TQM. That mission has been accomplished. Our next phase will require all line managers to recognize that continuous improvement in all Center processes is a line management responsibility. The TQM Steering Group is redesignated as an ad-hoc TQM Support Group (TSG) that will continue in existence as long as necessary to assure a smooth transition into a culture of continuous improvement.

The members of the Center Management Group are designated to serve as an Executive Steering Council (ESC) to define TQM policy, provide guidance and broad coordination, and support the Quality Management Boards (QMB) and the overall quality improvement effort. The ESC shall establish Center-level quality goals and measures; and define, charter and appoint Center-level QMB's. This council will be chaired by the Center TQM Advocate (the Associate Technical Director (Code 01A)) with the Director of Corporate Planning (Code 01A1) acting as his deputy in that capacity. The TSG will provide staff support to the ESC and TQM advocates as requested.

The ESC will continuously monitor the state-of-the-Center and appoint Center-level QMB's in functional areas that appear to offer potential for significant improvement. These QMB's in turn will evaluate all processes in their functional area and charter PAT's to develop recommendations for changes. The QMB's will have a continuing role and be revalidated every six months for their continuing need. The PAT's should exist only for the duration of their individual project/task.

One of the keys to improvement is follow-up to ensure that the process changes implemented do, in effect, have the anticipated positive result.

All changes recommended by the PAT/QMB process shall include the baseline measure the changes will impact and the expected results. Process changes will be approved by the QMB's and implemented via letters to the responsible departments.

TQM is becoming part of the Center's culture. Line management is going to take a greater role and provide leadership and a climate to accept continuous process changes and improvement. All Department Heads are encouraged to replicate the Center's TQM structure within their departments. All employees are empowered and encouraged to make recommendations for changes to their line managers in any process where they see a potential improvement is possible.

GUY C. DILWORTH
Technical Director

C.J. WINTERS
Commander

Commander Salutes

Richard Mitchell, Peter Carroll (Code 70), **SQDLDR Nigel Goodenough RAF** (Code 10): For commendable efforts in assisting the Airborne Crew Trainer Team during their recent visit.

Joseph McFadden (Code 60): For outstanding assistance to the Naval Air Systems Command in support of the T-45 Systems Engineering Support Team.

Dr. Martin Squicciarini (Code 50): For involvement during the High School of Engineering and Science students tour of our Laser Laboratory.

Robert Finkelman (Code 05), **James White** (Code 02): For outstanding assistance to the Navy Regional Data Automation Center.

Annemarie Burke, Rosanne Petro, Debra Erney (Code 20): For contributions in revising the AIR-511 Field activity tasking and budget documentation system for FY-91.

Timothy Armstrong (Code 83): For contributions and dedication resulting in a productive and successful Equal Employment Opportunity Program.

Major Barry Hansen (Code 09): For dedication in coordinating the visit of the aviation officers of the Marine Corps Amphibious Warfare School.

Kevin McGinley, Keith Young, Michael Strizak (Code 60): For efforts in assisting the Struthers-Dunn team in proving their theories and hardware.

Carl Pierce (Code 60): For efforts in touring the Hatboro Horsham fifth grade enrichment classes.

If the SOC fits

By Robert Janes
General Counsel

At a recent Standards of Conduct (SOC) briefing, I was asked about the propriety of an NADC employee's accepting a ride to the airport from a contractor employee who was accompanying him on official travel. I advised that I *suspected* this was improper, but I was not sure and would doublecheck the SOC regulations and publish the results in this column.

It turns out that it is impermissible to accept a ride under the circumstances outlined above. It is a basic rule that DoD personnel may not accept any sort of transportation or accommodations from DoD contractors. The Navy's SOC instruction does list some exceptions (for example, when the transportation is being reimbursed as part of a properly approved job interview), but none of those exceptions are applicable here. The instruction goes on to note that the listed exceptions are "the *only* occasions in which Department of the Navy personnel may accept transportation or travel-related expense payments or reimbursement from a DoD contractor. Even though refusing contractor-provided transportation may cost the Government more in the short run in a particular situation (because providing our own transportation or using commercial alternatives costs money), the Government's long-run interests are best served by ensuring the 'arms length' nature of its business transactions and by maintaining the public's confidence in the integrity of its institutions and officers."

Indeed, one of the examples following this portion of the instruction provides, "A GS-13 violates the rule by sharing a taxi ride with a DoD contractor representative without paying for her share even if both are going to the same destination."

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.

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Editor ..... **Mary Ann Brett**
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Assistant Editor ..... **Margaret Vigelis**

Interview Do's and Don'ts

CPD role plays for better interviewing techniques

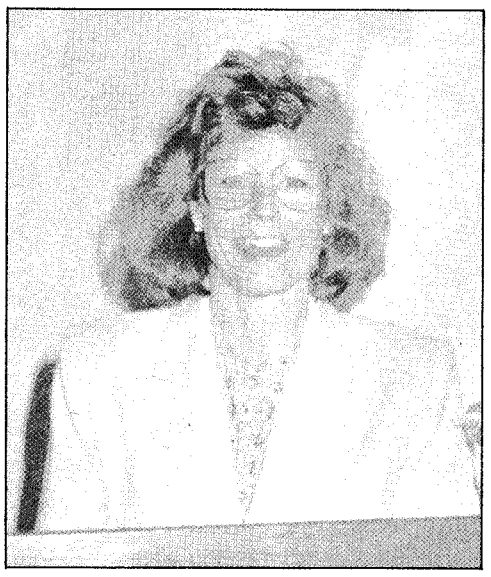


Photo by Cathy Burian

Jackie Benner presents interviewing and reference checking techniques to ten groups of managers and supervisors across the Center.

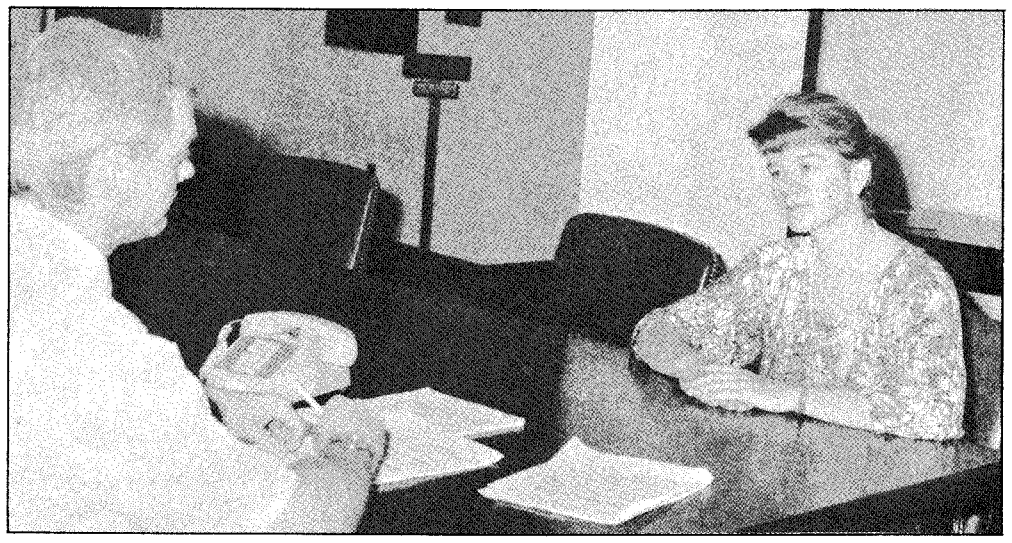


Photo by Cathy Burian

Denny Stiles and Margie Tausek demonstrate good and bad interviewing techniques.

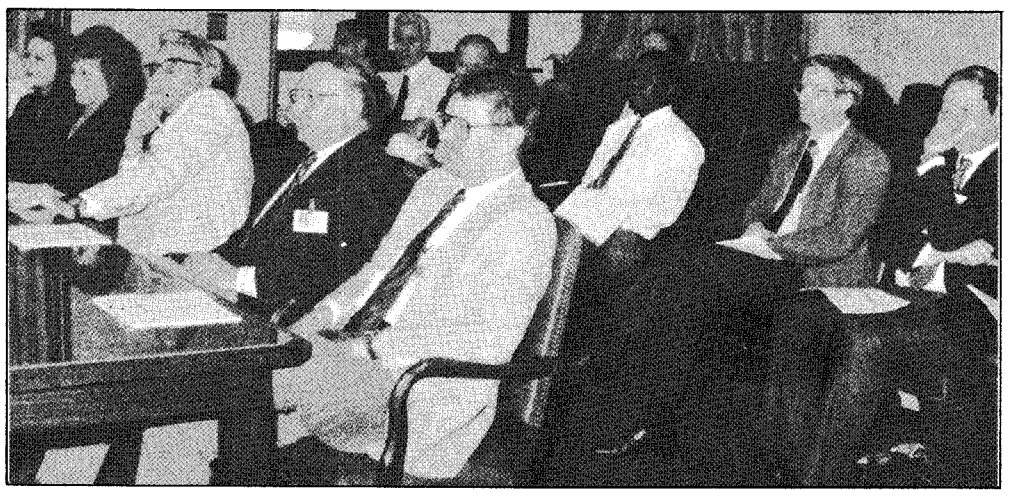


Photo by Cathy Burian

Right: The audience (this one from Code 60) was able to comment and ask questions during the role playing process.

By Dennis Stiles (Civilian Personnel Department)

In the current environment of limited resources it has become more important for managers to select well-qualified, productive employees. Interviewing and reference checking serve as valuable tools in this process and, when properly conducted, they provide an opportunity to gain relevant, job-related information. Unfortunately, while much information is available to help prepare job-seekers for successful interviews, not as much attention has been devoted to preparing the interviewer.

Recognizing this need, the Personnel Services Division (PSD), Code 034, developed a training workshop for managers to provide information and materials for conducting better interviews and more productive reference checks. Six PSD members including Jackie Benner, Rita Brownlee, Janet Russell, Dennis Stiles, and Marjie Tausek participated in the workshop. Charles Banionis served as a back-up for the interviewing skits. Individual sessions were scheduled for each department to make this training as convenient and personalized as possible for managers who wished to improve their skills.

The workshop consisted of a viewgraph presentation along with live interviews acted out by members of the Personnel Department. Supervisors were provided with information on how to conduct better interviews while paying strict attention to Affirmative Action concerns. Major areas discussed included common pitfalls of and preparing for interviews, interviewing do's and don't's, and equal employment opportunity awareness.

The discussions were brought to life through role playing skits demonstrating exaggerated "bad" and "good" interviews. The audience found the skits amusing and provocative, tending to generate lively discussions on the subject.

The workshop also included needed information about reference checking. Reference checking can be a very good method of providing a supervisor with performance information on a job applicant. Unfortunately, present day concern over legal liability has resulted in many references providing as little information as possible to prospective employers. A paradox exists between the losing and gaining employer with the former supplying little information on the applicant and the latter trying to gain as much information as possible. The workshop discussed these problems and presented methods to make reference checking as meaningful as possible. This subject area prompted even more meaningful discussions.

This workshop will be videotaped so present and future supervisors will be able to access the presentation at their convenience. For more information, call Janet Russell.

Second qtr SOQ and BJQ named

By JO2 Michael Delledonne

Sailor of the Quarter

Competing against three or four individuals for Sailor of the Quarter is tough enough, but when you're up against 10 other people your chances of winning look slim. That's what happened to Aviation Antisubmarine Warfare Technician (AX) First Class Paul Yuknis, as he topped all other nominees to be selected Sailor of the Quarter.

A nine-year Navy veteran, Yuknis was pleased when learning of his nomination. "It's a very positive thing," said Yuknis. "It's an effective way for the Navy to reward people for doing a job well-done."

The 27-year old from Easton, Mass., was elated when informed of his selection. "It's not only recognition for myself, but my whole division. We really have a great team here and I could not have done it without them, as well as the support of my wife, Wendy, and children Heidi and Kirk."

Working in VP Projects with the Update IV, and P-7A Projects, Yuknis also serves as Division Leading Petty Officer (LPO), and Drug and Alcohol Program Advisor (DAPA) for the command.

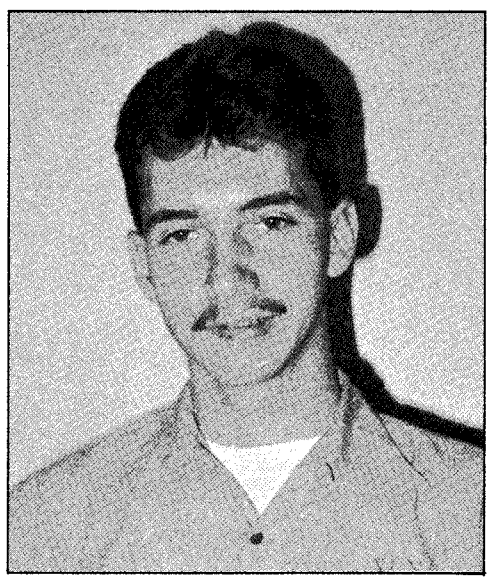
"Working here is quite rewarding," said Yuknis. "Between my regular work and my DAPA responsibilities, I find myself very busy. The work is a tremendous challenge and a great experience for my career."

AX1 Paul Yuknis
Sailor of the Quarter

Blue Jacket of the Quarter

Stationed on the Center for only five months, Aviation Electricians Mate (AE) Scott Veno made quite an impression with his supervisors. So much so, they nominated him for Blue Jacket of the Quarter. With so little time on Center, you can imagine his shock when Veno was told of his selection.

"I didn't think I was doing anything that spectacular," said Veno. "I was really surprised that I won because it was my first time. The individual I was competing against does a good job. I'm happy the selection board thought enough of me to choose me."



AEAN Scott Veno
Blue Jacket of the Quarter

The 19-year-old from Canton, OH, realized from the beginning what he wanted to do in the Navy. "I always had a fascination with airplanes and my step-father was into electronics, so I just naturally went to the AE rating," explained Veno. "I love working on the P-3 aircraft because anything that has to do with the electrical system I get to work on."

With only a little more than one year in the Navy, Veno is impressed with the Center, but has noticed one problem. "Every now and then there is a lack of communication," he said. "It's nothing that would keep you from doing your job, but you notice it. The Center is a great place to work and I'm glad I can be a part of it."

Seeing is believing

Atlantic Fleet visit is an eye openi

By Mary Ann Brett

Read about it, hear about it, see it on movies and TV, but unless you have lived it, you can't appreciate life on board an aircraft carrier--or so say four NADC engineers who spent four days on the USS JOHN F. KENNEDY.

John Cunningham, Stan Brown and Michael Falco of the Mission Avionics Technology Department and William Schork of the Air Vehicle and Crew Systems Technology Department almost in unison agreed their indoctrination visit to the fleet was "outstanding." Each returned with a new appreciation for how their contributions at NADC fit into the Navy's overall picture.

That appreciation is just what Fleet Interface Coordinator Dr. Richard Bromberger is hoping to achieve. "I'd like our people not to think they work only for NADC. Rather, I'd like them to know that their work impacts the operational Navy and vice versa. Fleet visits to our ultimate customers, on their turf, helps both sides see the relationship between what each side does."

Aerospace engineer William Schork simulates catapult and arrested aircraft landings without ever having actually seen it happen. "Now I have a better feel for the velocity and acceleration measures we use in our simulations. Although I can visualize 100 yards in distance, it seems a lot shorter on the deck of the carrier when the aircraft is attempting to land."

Michael Falco, an electronic engineer who helps to design microwave systems, said he better realizes now how difficult it can be to repair those systems in such confined spaces. "I was aware of the atmosphere and the space limitations before," he explained, "but the problems are much more obvious to me now."

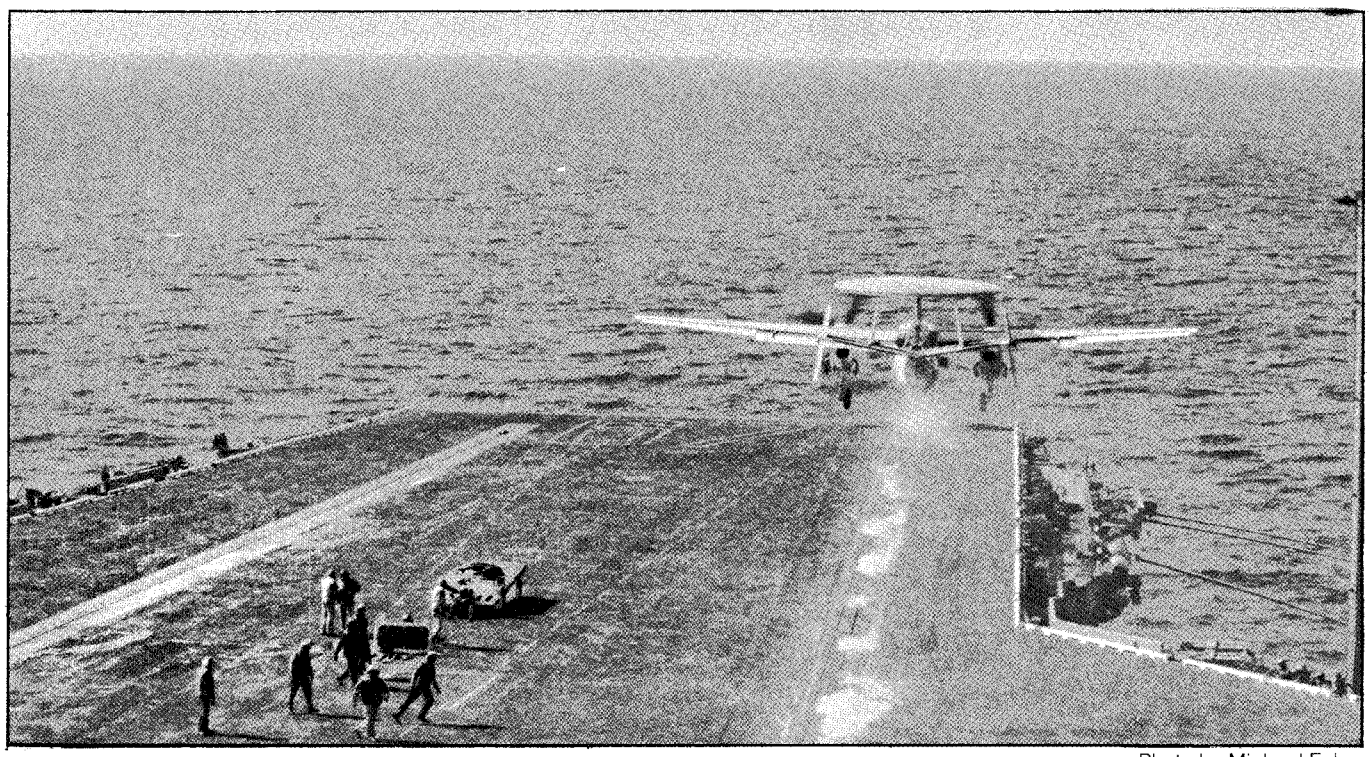


Photo by Michael Falco

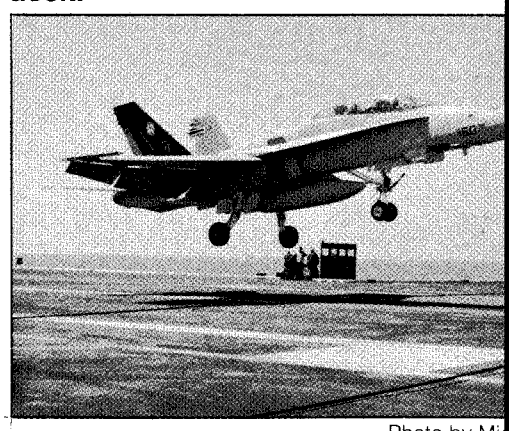
E2C is catapult launched.

Photo by Michael Falco

Left: F-14's awaiting launch for flight operations.

Below: F/A-18 does touch-and-go's during operations.

Bottom: A view from the hangar door from the flight deck.



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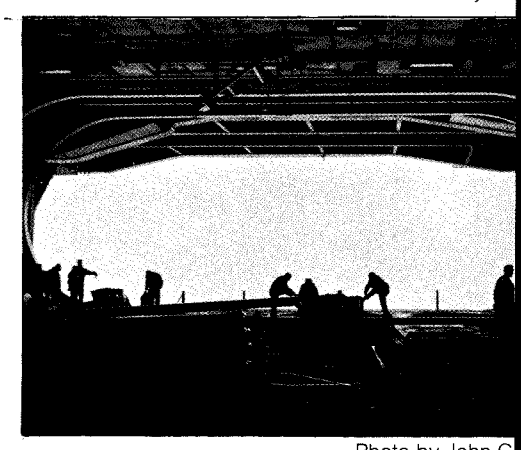


Photo by John C

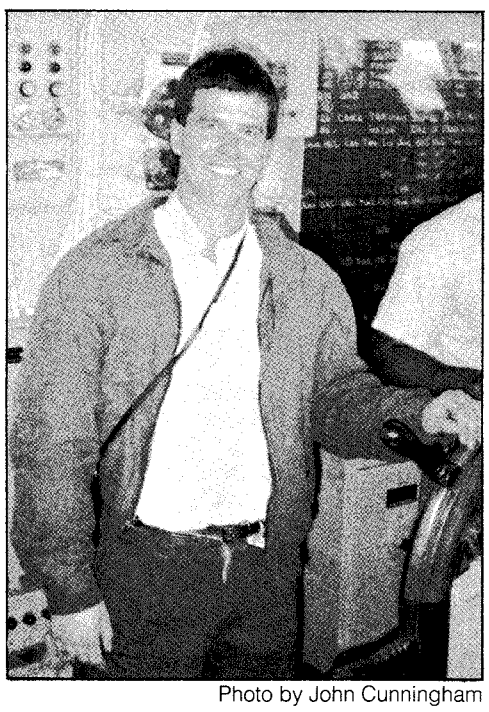


Photo by John Cunningham

Michael "Commander" Falco has a hand on the helm.

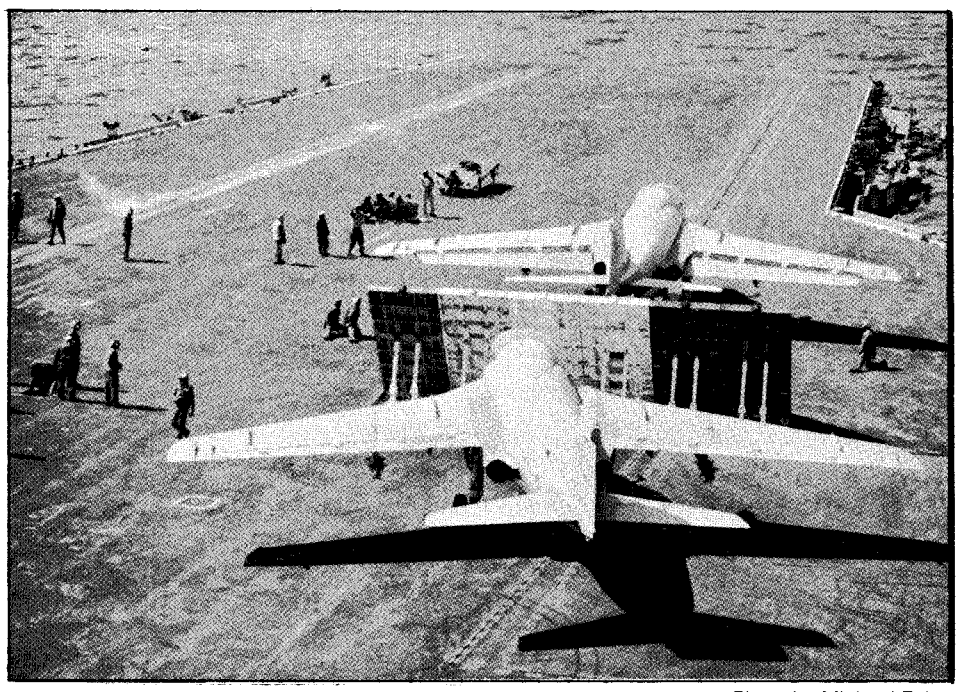
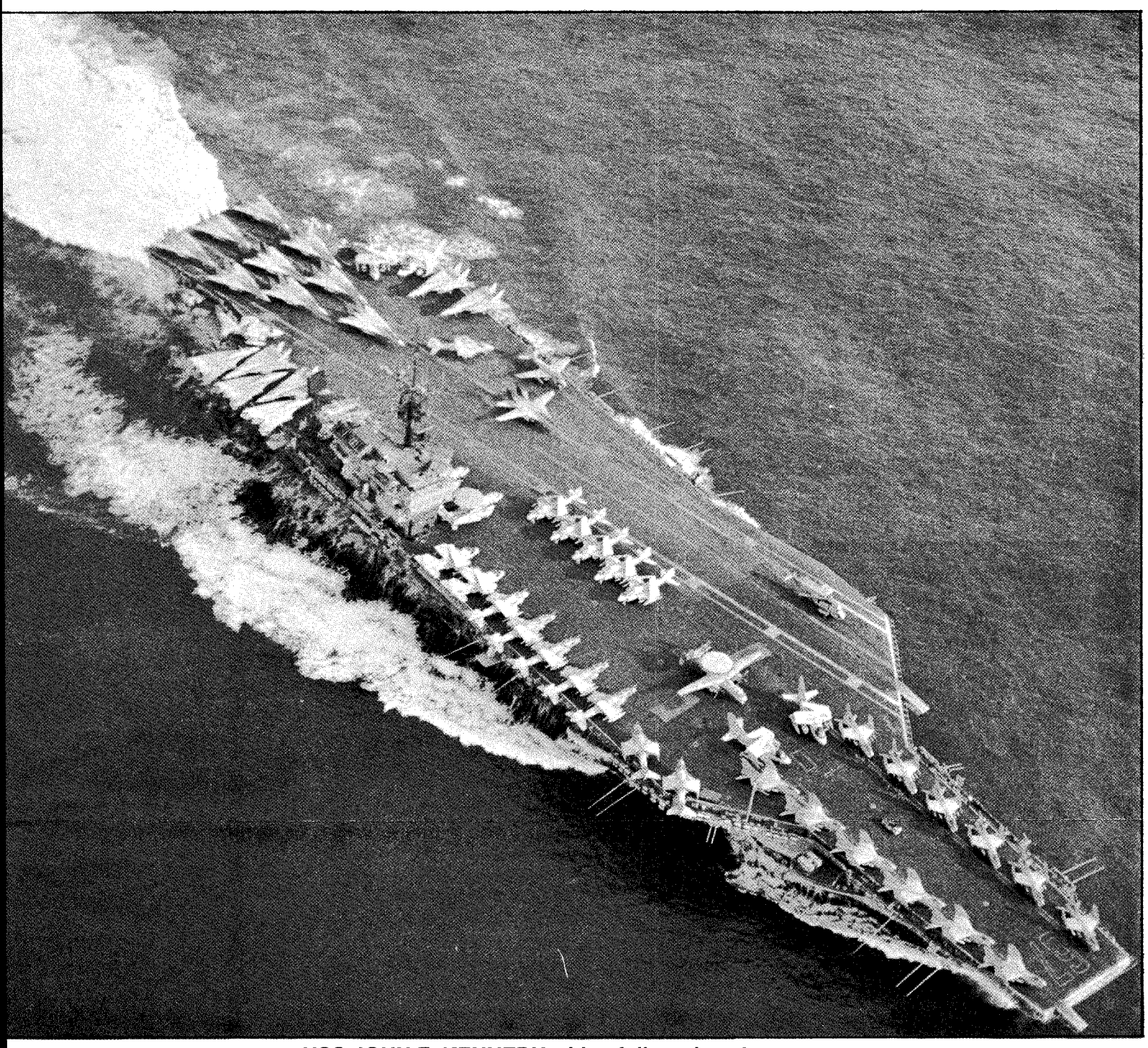


Photo by Michael Falco

A-6's prepare for launch during carrier qualifications.

g experience



USS JOHN F. KENNEDY with a full carrier wing.

Brown, an electronics engineer currently designing antennas for aircraft such as the V-22 and EA-6B said, "While there are acceptable levels of realibility, making it personal really makes a difference. Suddenly, anything less than 100% realibility becomes unacceptable."

"I was most impressed with the crew," said Cunningham, Head of the Microwaves Techniques Branch, "and their need to be self-sustaining. Many times, because of the ship's location, repair parts are unavailable and it's necessary to improvise. Conditions we take for granted on land are easier said than done out at sea."

The group was busy from morning until the wee hours of the night and they covered the ship from stem to stern (that's ship talk for 'everything') and then some. They were able to personally witness aircraft taking off from and landing on the carrier. Accommodations aboard the ship were acceptable to all and they ate in the Officers' Ward Room.

The group, already touting the visit among their peers, wholeheartedly recommends the experience for all mid-level engineers and scientists.

While four males took advantage of this particular opportunity, Bromberger stressed that the invitation to get a closer look at the Fleet is also extended to female S&E's. In fact, Bromberger's long range plans include establishing a program where clerical and support personnel might participate in a somewhat less comprehensive version.

If you would like more information on this or upcoming Fleet visit opportunities, call Dr. Richard Bromberger on ext. 2602.

Photo by Michael Falco

Stan Brown, William Schork, Michael Falco and John Cunningham on the flight deck cat walk.

Photo by Michael Falco

William Schork gets a better view.

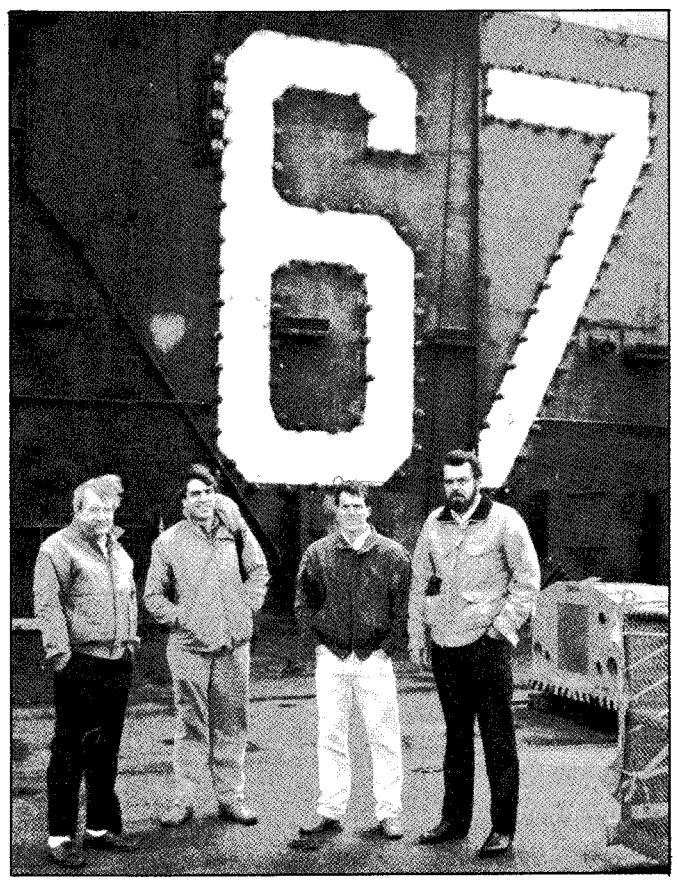


Photo by John Cunningham

Above: Stan "Admiral" Brown in the Admiral's chair.

Left: Stan Brown, William Schork, Michael Falco and John Cunningham on the flight deck beside the USS KENNEDY's designator numbers.

Children's day camp goes around the world

By JO2 Michael Delledonne

Imagine your children having the opportunity to visit nine countries in nine weeks at a minimal cost. To experience nations such as Japan, Canada and Ireland, just to name a few, could show them many cultures make up our world. This year's summer day camp's theme at Shenandoah Woods Community Youth Center is "Many Cultures Make Up Our World."

The camp, headed by Sis Stanley, is expected to give children the opportunity to explore different countries during the summer. "The kids will visit nine countries in nine weeks," said Stanley. "They will learn about the customs, foods, flags and anthems of Canada, Ireland, Japan, different African nations, United States, England, Soviet Union, Poland and Italy."

According to Stanley, day trips are also scheduled to the Academy of Natural Science, Philadelphia Zoo, Franklin Institute and several other outside activities. "We intend to keep them very busy," she said. "By the time the kids get home they should be pretty exhausted."

Cost of the Day Camp varies from members to non-members. Members are charged $25 for the first child, $20 for the second and $15 for each additional child. For non-members the costs are $35 for the first child; $30 for the second and $28 for each additional child.

Registration is currently underway with more than 100 kids expected to attend. Day camp runs from June 25 through August 24 from 8:00 a.m. to 4:30 p.m. with extended care available at an additional cost. "It's a good solid program," said Stanley. It's educational, yet at the same time should be a lot of fun. We're really looking forward to it."

ASW still top priority in Navy

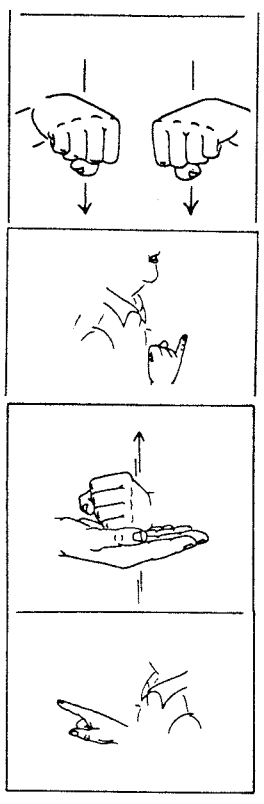
continued from page 1

Five nuclear and four conventionally-powered submarines were launched in 1989.

Vice Admiral Daniel L. Cooper, Assistant Chief of Naval Operations for undersea warfare, stressed the unique capabilities of the submarine. "Through its inherent stealth, mobility and endurance, the SSN is the one platform which can determine where, when and if the engagement will occur." He also added, "as long as a submarine threat exists we have to be able to counter that threat. Until there are no submarines, there must be effective ASW."

The Chief of Naval Operations testified to Congress in February that ASW remained the Navy's top warfighting priority, and he stressed the need to maintain today's qualitative edge in order to compensate for numerical inferiority. Admiral Trost said the Navy needs a variety of modern advanced ASW capabilities to maintain a warfighting and surveillance edge, in particular the finest ASW unit, the new SSN-21 Seawolf Attack Submarine.

A lesson in sign



CAN, COULD, POSSIBLE, ABLE, ABILITY, CAPABLE

Move both "S" hands downward in a firm manner (palms down).
Origin: The fist indicates power.
Usage: *can* sign well; we *could* if we had time; that's not *possible;* not *able* to understand; he really has *ability;* a very *capable* person.

I

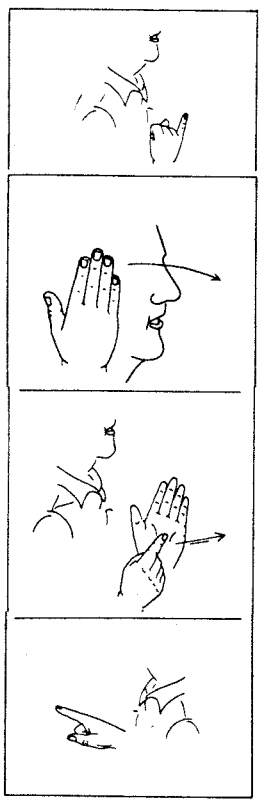
The "I" hand is placed at the chest.

HELP, ASSIST, AID

Place the right open hand under the left "S" which is facing to the right; lift both hands together.
Origin: Offering a helping hand.
Usage: Please *help* me.
I need your *assistance.*
The Red Cross came to their *aid.*

YOU

Point the index finger out. For the plural, point the index finger out and move from left to right.



I

The "I" hand is placed at the chest.

WILL

Raised right arm with open palm toward cheek, moves forward. (This sign is used only as a verb.)

SHOW, REVEAL, FOR EXAMPLE

Place the tip of the right index into the left open hand, which is facing out, and move both hands forward.
Origin: As if pointing to something in the hand.
Usage: *Show* me how to do it.
Her words *revealed* her ignorance.
One word can have several meanings, *for example* . . . .

YOU

Point the index finger out. For the plural, point the index finger out and move from left to right.

Landscape for energy savings

By Michael Blank, P.E.

We should all be aware that environmentally sound landscaping is an important element for energy savings. It also improves the appearance of our homes and increases their value.

Trees or bushes planted close to building walls create dead air space which provides good insulation. According to the researchers at the Center for Building Studies (Lawrence Berkeley Laboratory in California), urban trees make a major contribution to our energy savings. In this study, about one third of the energy savings produced by trees comes from shading and evaporation. The rest results from a tree's ability to use carbon dioxide in the growth process while producing levels in the atmosphere. The Berkeley report shows that a tree in the city is about 10 times more effective at reducing carbon dioxide than a forest tree. In addition, the reports estimate that nationwide, residential and commercial tree planting could save millions of BTU's annually.

In planning a landscape design, six major factors are to be considered:

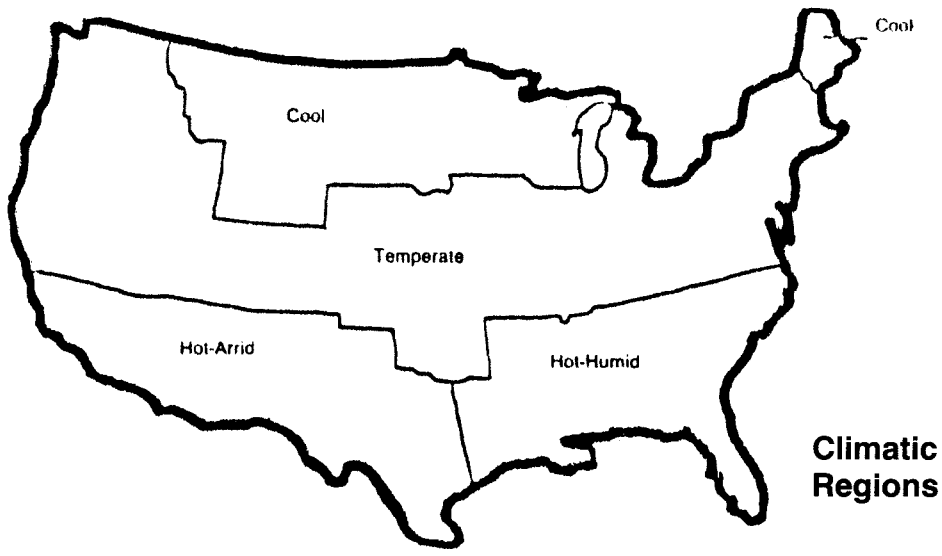
— type of climate
— building site
— building structure
— type of microclimate that is desired
— position of the sun in summer and winter months
— direction of the winds in summer and winter months

The United States is divided into four main climatic regions: cool, temperate, hot/humid, and hot/arid. The temperate region is the largest and is characterized by hot summers and cold winters. The humidity level and yearly precipitation varies in different areas of this region. Generally, landscaping system strategies should be planned and designed to deflect winds in the winter and provide a free flow of air in the summer.

We live in the temperate zone, but unfortunately, that is no guarantee our climate will always be moderate. For example, during the last two summers, temperatures often climbed into the 100's, with high humidity. In contrast, December 1989 was one of the coldest on record.

In February and March of 1990, more extreme temperatures occurred when the temperature rose to 75 degrees. We also witnessed a global warming trend, because of carbon dioxide build-up in the atmosphere which scientists identified as the "GREEN HOUSE EFFECT."

How can we cope with these weather extremes? No one in the scientific community has any one answer or solution. But, to help moderate the temperatures surrounding the outside of our homes, we need a comprehensively designed landscape system. This includes planting trees and shrubs which help control flexible local temperatures, by making our homes cooler in the summer and warmer in the winter.



Climatic Regions

CNO stresses War College education

A May 1989 Chief of Naval Operations Service College Education policy statement urged "officers whose assignments do not permit in-resident education to avail themselves of the education offered by the Naval War College, College of Continuing Education." The policy statement goes on to say "enrollment in these courses is an important and career enhancing professional undertaking and it should be recognized as such by commanders and commanding officers."

The Naval War College has offered continuing education courses through correspondence since 1914 and through nonresident seminars since 1974. The nonresident seminar program has recently expanded to cover 14 geographic sites around the country including the Warminster area. Open to officers in grades 0-3 and above and civilian employees of the government GS-11 and senior, this graduate-level education program offers the same three courses (i.e., Strategy and Policy, National Security Decision Making, and Joint Maritime Operations) taught at Newport. Completion of the three core courses leads to a Naval War College Command and Staff level diploma. Enrollment for the coming academic year, which begins during the week of 3 September, has already started and will continue through July. Classes meet once a week at night over the 36 week academic year. For further information contact John Markow of the Employee Development Division at ext. 1026 or the Naval War College, College of Continuing Education at Autovon 948-2135 or Commercial (401) 841-2135.

Who they are; What they do

By JO2 Michael Delledonne

Although a college education seems to be the way to go today for most high school graduates, it's not for everybody. "I always pictured myself in the military," explained Aviation Storekeeper (AK) Second Class Dundee Davidson. "I wanted to go into the Air Force, but the wait was too long. I talked to the Navy recruiter and two weeks later I was in boot camp. I just wanted to get on with my life and experience some of the world."

A native of New York City, Davidson handles aircraft part supplies. "I put the requests into the supply system for replacement parts that keep our planes flying and make sure we receive them in a timely fashion," he said.

When asked about his rating, Davidson said he liked it but . . . "I would really like to do something a little more challenging," he said. "When you do the same thing day in and day out, it gets to be routine." To solve his problem, Davidson will cross rate in November to Air Traffic Controller. "I go to Memphis for school. I'm really excited about the opportunity."

AK2 Dundee Davidson

With his time at the Center almost up, Davidson reflected, "The Center is a great place to work. We are on the cutting edge of technology. You feel like you're the first to know when something big happens. I'll miss it."

Patent pending

By Mary Ann Brett

Inventions, many with commercial potential, are continually being developed here at NADC. With the help and guidance of the Center's Patent Counsel Staff, this NADC-developed technology will continue to be recognized for its quality and innovation. In addition, increased emphasis on the licensing of government-developed technology has created money-making opportunities for engineers and scientists as well as the Center. If you have any questions on patents in general or these in particular, do no hesistate to call the Patent Counsel office, ext. 3000.

Patents issued

"Yaw Fin Deployment Apparatus for Ejection Seat" by Anthony Tran, Chi Tung and Peter Yost--Patent No. 4,901951.

"Multi-Channel Acoustic Simulator" by Marc DiLemmo-- Patent No. 4,908,800.

"Helmet-Mounted Head Restraint" by Michael Patterson--Patent No. 4,909,459.

"Fiber Optic Magnetometers for Multiple Order Gradiometers" by Lloyd Bobb--Patent No. 4,918,371.

Recent patent applications

"Stabilized Square Parachute" by Carl Calianno, Navy Case No. 71984.

Secretaries honored at NADC

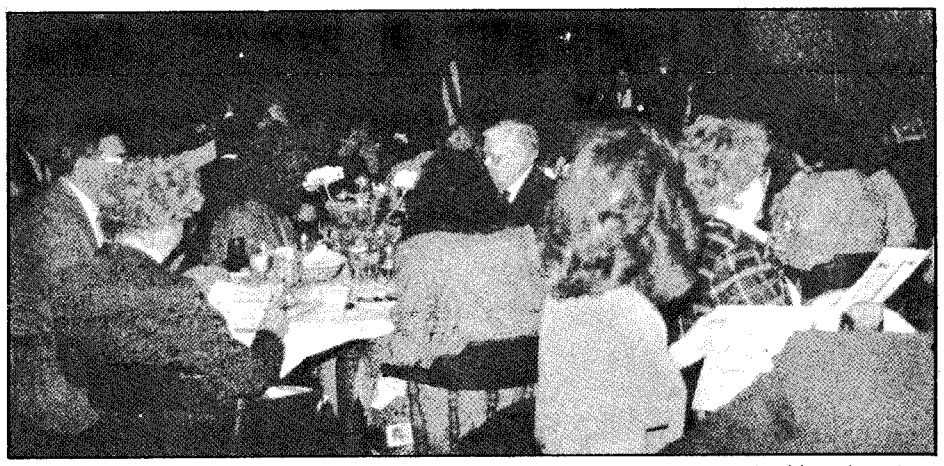


Photo by Mary Ann Brett

"People who perform well feel good about themselves," and "People who feel good about themselves perform well," was the humor-filled but serious theme of guest speaker Dr. David Berg.

A noted speaker and Psychologist, Berg addressed more than 100 managers, secretaries and clerical personnel who attended the Naval Civilian Managers' Association-sponsored annual Secretaries' Day Luncheon in the Center's Dining Room.

Photo by JO2 Michael Delledonne

The NADC Officers' Wives Club made it convenient for managers, supervisors and friends to buy their secretaries and clerical support flowers for Secretary's Day. Proceeds from this annual sale are donated to various charities throughout the year.

Good ideas are worth $$$

Good ideas are worth money--both in short or long term savings to the Center and in cash awards to the suggestors. Three such suggestions from across the Center were adopted during March 1990.

The suggestors, suggestions and awards are:

Thomas Reiter (Code 84) for "Auditorium in use sign," $25

Ron Kabin (Code 00R) for "Electronic bulletin board," $100

Guy Nissley (Code 83) for "Reduction of CFC's," $450

NADC closed landfills investigated

continued from page 1

will be scheduled to minimize disruption of traffic. Watch for the exact times the perimeter roads on Center will be closed on the Center closed circuit system.

"I want to emphasize that there is no danger to Center personnel. Please do not be alarmed by the manner of dress of the field investigation team or the need to close the roads and gate. These are purely precautionary measures that we are required to follow."

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Early season softball surprises seen

By Jack Eyth

The season is still too young to decipher any trends, but there have been a few surprises which have resulted in unusual early season positions for some teams.

Deserving special recognition are the Phantoms who are 2-0 after going 3-11 last year. Coach Bob Swissler credits their success to the outstanding pitching of Clay Vind. Other teams with fast starts are the Renegades, Misfits and the Rebels, all 3-0. The most dominating of these three teams are the Renegades who unbelievably have outscored their opponents 39 to 3. Looks like that off-season acquisition of pitcher Joel Wexler is paying dividends already. It's a good thing the Renegades have Wexler, since one of their other pitchers, Keith Rizkowski is out for the season with torn knee ligaments after an unfortunate Walleyball accident with teammate Steve Bazow.

The Rebels may be for real this year with the emergence of new pitcher, Ross Osborn. Osborn made his debut against the Life Supporters in a rain shortened by 10-2 victory. Speaking of rain, the Misfits were fortunate as they slip-slided their way to a 5-4 victory over the Herassers. An injury to Jeff Price appears to have affected the Misfits run-production although Herasser pitcher George Logue gets a lot of credit for almost pulling off the upset.

On the other end of the spectrum, the Dynatigers and the Life Supporters are sand-bagging the rest of the league with 0-3 records while seven teams have just one victory. Both the Intimidators and Eighth Inning are coming out of the gate slowly at 1-1. The Intimidators are now without star pitcher Ken Beebe and have attempted to fill his shoes with Perkasie Policewoman, Tracey Burns. The Eighth Inning lost a close one to the Granfalloon but still find themselves uncharacteristically with a .500 record. Is it possible that some of last year's powerhouses may be merely mortal this year?

Here are the league standings as of 4 May 1990:

TEAM	WINS	LOSSES	RUNS FOR	RUNS AGAINST
RENEGADES	3	0	39	3
MISFITS	3	0	34	13
REBELS	3	0	38	17
PHANTOMS	2	0	43	19
HERASSERS	1	1	16	9
INTIMIDATORS	1	1	24	25
GRANFALLOON	1	1	8	10
8TH INNING	1	1	23	14
SAND FLEAS	1	2	13	31
BEARCATS	1	3	37	52
CRUSH	1	3	29	62
DYNATIGERS	0	3	15	39
LIFE SUPPORTERS	0	3	13	38

Mixed Bowling League News

By Lorraine Williams

It has been an exciting second half in both divisions, with tough struggles for first place. In the B Division, **Jack Horning**'s "Screwballs" and **Lorraine Williams**' "From the Gutter" battled it out for weeks, with the "Alley Cats" and the "Goofers" close on their tails. "From the Gutter," bowling without star female, **Char Pohle** (who has been on injured reserve since breaking her ankle) managed to squeak through and capture the title, thanks to **Rick Yeager**'s superb anchoring. Although fine scores were turned in on Knockdown night by the "Screwballs" regulars. **John Ryan** and **Jack Horning**, it will be "From the Gutter" who will represent the B Division in our League Championship rolloffs. Their competition will be the first half winners, **Al Knobloch**'s "Goofers," **Larry Sicher**'s A Division second half winners, "Magic Markers" and last year's champs, this year's first half A Division kings (and queens) **Wes Gleason**'s "Gutter Dusters."

Speaking of the Magic Markers, they put up a fierce fight to win their half over in the A Division, going into Knockdown night tied with those perennial second placers, **Tom Reiter**'s "Red Winos." Final score Markers 4, Winos 0.

Pool to open Memorial Day Weekend

Memberships for the 1990 summer pool passes are being accepted by the Recreational Services Division. The facility boasts a large pool, kiddie/wading pool, refreshment stand with snack bar and large play area for the whole family. For information on single or discounted family passes to a splash-filled summer, contact the MWR Fitness Center or phone 441-2169. Memberships are limited!

W&R golfers at Wedgewood

By Pete Brown

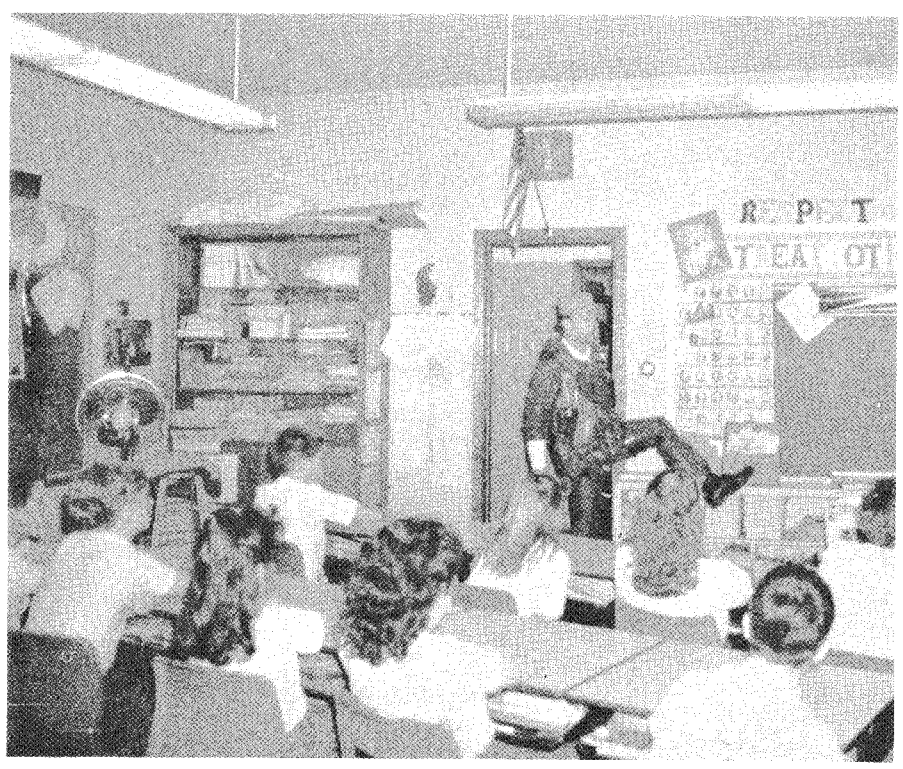
Sixty-seven W&R golfers journeyed to Allentown on the 10th of April to play Wedgewood Golf Course. On-and-off rains in the late afternoon made playing conditions stressful for the late starters.

In the handicap division, Vince Formica won a tie-breaker with Tony Madera with a 1st place 59. Jim Orr finished 3rd with a 60 (another tie-breaker with Ed Liuhe), and Bill Daymon finished 5th with a 63.

Low gross honors went to John Nottage (an even par 71), second low gross to John "Does He Ever Play?" Sniscak, and third to Curt Swatchick with a 77. Closest-to-the-pins went to Harry Frost, #4-5'6''; Ron Walter, #6-5'8''; Jerry Costanzo, #13-3'9''; and Pete Brown #16-12'7.'' Longest drive (#18) to "new boomer" Jerry Costanzo with a 285-yard blast.

Next W&R outing will be at Locust Valley on 12 June. Get out your tree-irons!!

Pilots soar for school children



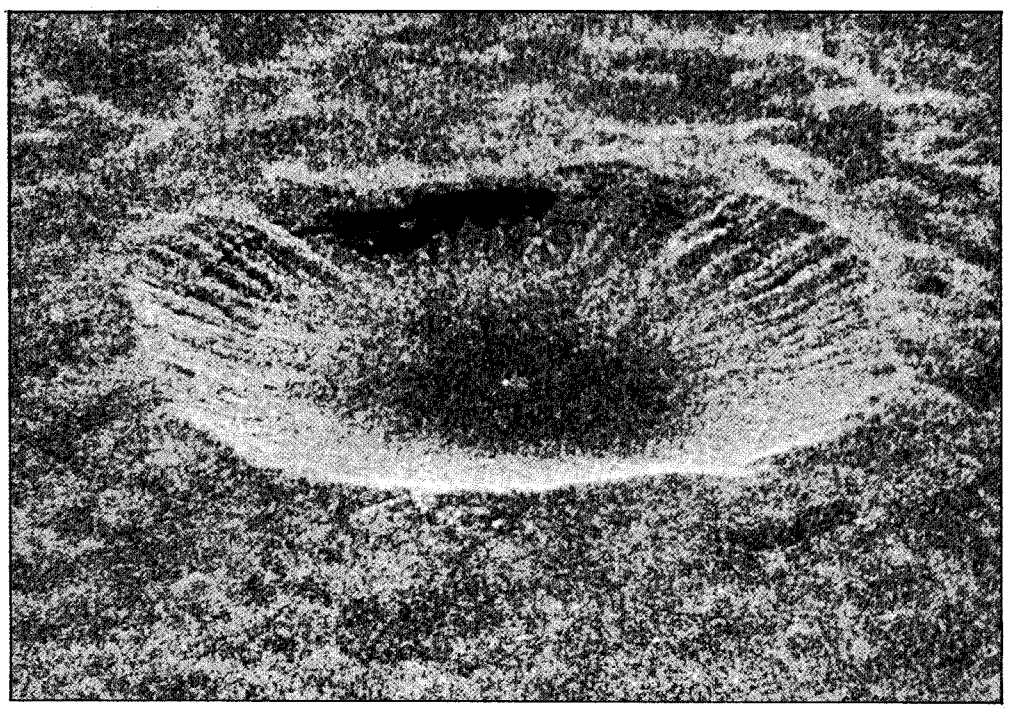
The students of the 5th grade class at Our Lady of Mt. Carmel in Doylestown learn about becoming a U.S. Navy pilot. Above, NADC's LCDR Mike Messick demonstrates how the bladders in a G-suit operate to help keep pilots safe.
Left: LCDR Tim Sestak enlists the aid of a student to show the survival equipment carried by Naval aviators.

Reflector

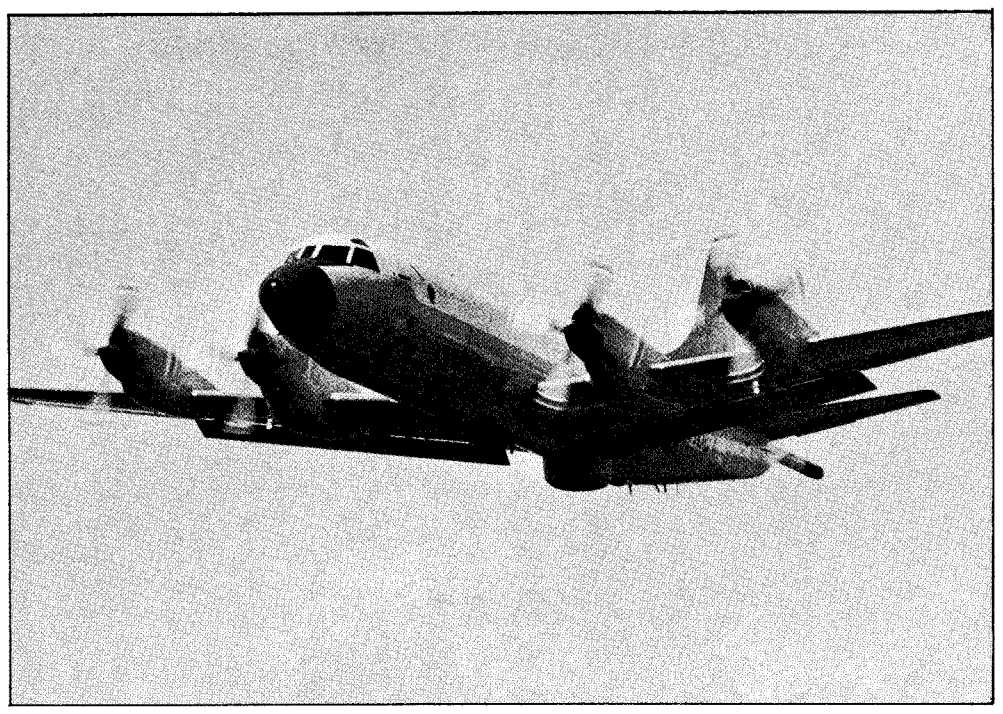
Volume 35 Number 6 | NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. | June 1990

In This Issue:

NADC radar images Arizona crater



Digitally processed radar image of Meteor Crater in Arizona. Photo by NADC Photo Lab



NADC's Synthetic Aperture Radar P-3 aircraft. Photo by NADC Photo Lab

By Mary Ann Brett and Andy Ochadlick, Jr.

Approximately 50,000 years ago, an iron meteorite about 30 meters in diameter and weighing about 100,000 tons struck the Earth at a break-neck speed of about 20 km/s. The record of that impact is preserved as a crater, known as Meteor Crater, located in Arizona. Since a federal airway followed by the airlines passes near the crater, Meteor Crater is a well known land mark for Center employees who travel to Southern California. Because certain aspects of its structure are very well documented, Meteor Crater is being used to help calibrate the NADC Synthetic Aperture Radar (SAR) system. [Chuck Haney (Code 5024) was responsible for the leadership in and management of the NADC SAR Program and, as a result of his efforts, he was awarded the NADC Commander/Technical Director Achievement Award for Project Leadership].

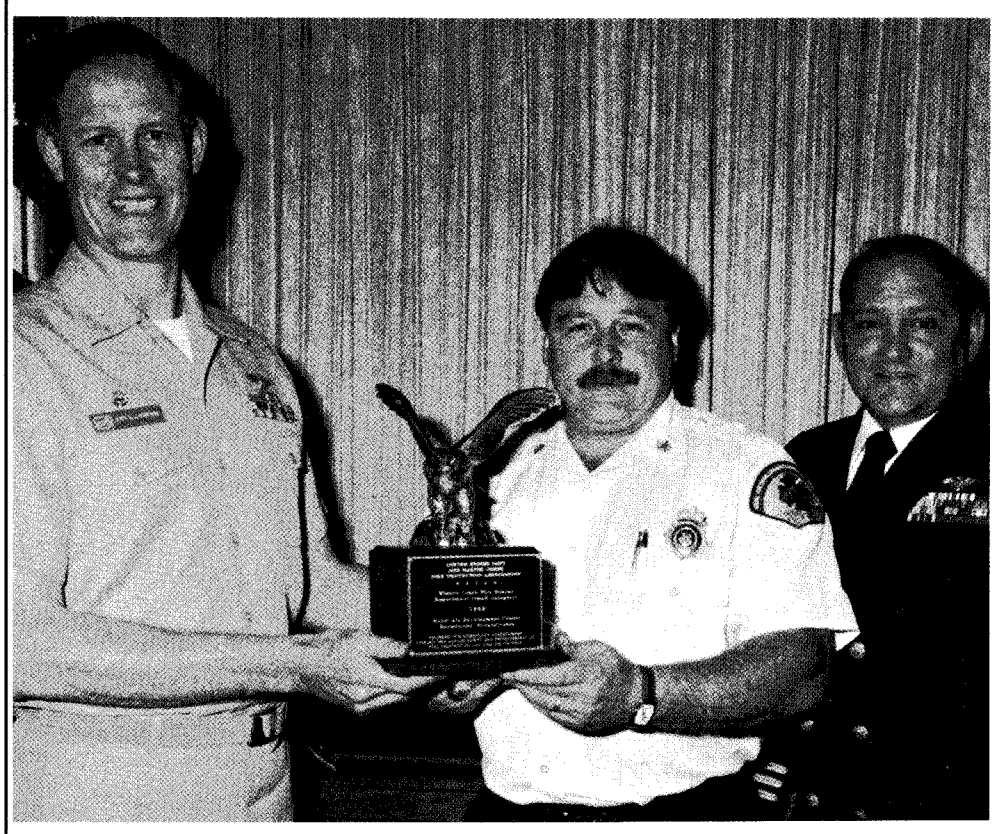
The Center's SAR system is an imaging radar which produces photographic like images of a scene and is mainly used to study ocean and sea ice issues of importance to the Navy. A decade ago, it was relatively easy to acquire funding to do SAR studies since SAR imagery was a relatively new means for obtaining qualitative information on the ocean. Today, however, sponsors and researchers want to be assured that a SAR image is quantitatively correct, with respect to its geometric and radiometric calibration, so that accurate numerical quantities can be extracted from the image for testing, developing and analyzing Navy relevant SAR models of the ocean, sea ice, etc. It turns out that Meteor Crater is an ideal feature for helping us perform a full calibration process beginning with data collected in flight, which is then processed at NADC, and ends up in a quality image for scientific study.

The crater is an extended object about 1100 m across and about 150 m deep and is probably the most accurately mapped and studied piece of real estate in the world. Just about every conceivable study of the crater has been made from the ground, aircraft and satellites, making the crater an ideal object for demonstrating the geometric calibration of the Center's SAR. In addition, the sloping sides of the crater, its rim and the extensive knowledge of its surface composition and its surface roughness properties makes it an important target for assisting in the radiometric calibration of the Center's SAR.

In general, the calibration of a complicated system like the NADC SAR is more along the lines of an

continued on page 7

Fire Dept. gets Ogden Award



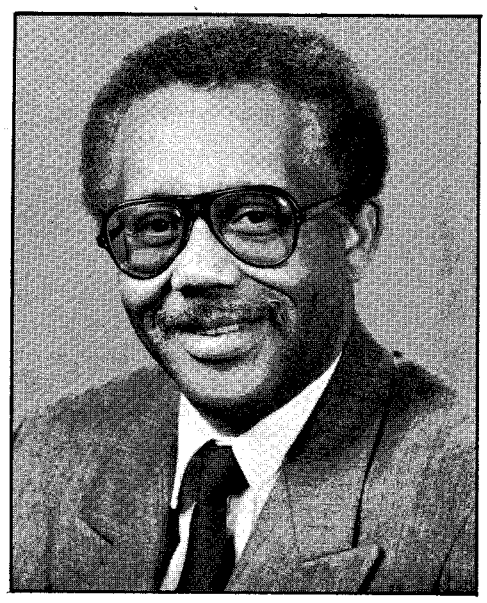
CAPT Curtis J. Winters, Center Commander, presents Fire Chief Don Meadows and CDR R. Cox, Head, Test & Evaluation Group, with the Allen G. Ogden Award. This trophy was awarded to NADC's Fire Department for winning the competition for 1st place, Crash/Fire/Rescue — Small Category. The Ogden Award was established by the U.S. Navy and Marine Corps Fire Protection Association to recognize outstanding accomplishments in fire prevention and fire protection within the Navy and Marine Corps.

Center leads night vision goggle lighting

At the recent lighting program management review, the Center was identified as the lead lab for the development of the NVG cockpit lighting program for 48 A-6E SWIP aircraft. As part of this task we will develop an ECP to cover the changes, develop and supervise the implementation of a logistics plan, define a contracting philosophy, conduct the engineering necessary to develop level III drawings from the current level II package, test and verify the modified lighting concepts (panels, lights and instruments) and integrate the lighting modifications with the Block 1A work being performed at NWC. We are anticipating an additional $1M in funding to support this effort.

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Commander Salutes

Stuart Boose, Mike Umehara, Paul Lubiejewski, Tom Haug, Tim Fitzpatrick, Andrew Schwartz, Dave Stasen, Tom Gould, Phil Huber, Jim Lezoche, John Devalle, Henry Muir, Larry Capilli, William Myers (Code 50): For involvement in the integration of an NSA development system on board a P-3.

Eugene Byers (Code 90): For time and effort taken to present a fire safety program to students of Second Avenue Elementary School.

Peter Yost, Gary Whitman, Lou D'Aulerio (Code 60): For support to the Naval Air Systems Command on the NACES development and test program.

Arlene Richman (Code 70): For superior performance in supporting the Tactical Aircraft Mission Planning System industry briefing and demonstration.

Robert E. Fay (Code 20): For outstanding support provided at the Department of Defense Independent Research and Development On-Site Review.

Mark Breidenthall, John Van Francen, Angelo Zuino, (Code 90): For going the "extra mile" assisting the Pacific Missile Test Center in weighing their P-3A a modification at LTV, Sierra Research Division.

Edwin McGlynn, (Code 60) For your selection as a recipient of the Joint Ordinance Commander's Group (JOCG) Certificate-of-Merit.

continued on page 7

If the SOC fits

By Robert Janes

SECNAVINST 5370.2J, entitled "Standards of Conduct and Government Ethics," is the primary Navy instruction in the area of the Standards of Conduct (SOC). This instruction is available in General Files (extension 2766) and should be consulted for guidance on any SOC questions. The Office of Counsel (Code 095) is likewise available to provide advice and guidance on these matters, and I urge any of you with SOC questions to call our office on extension 3000.

One of the enclosures to the SOC instruction, entitled the "Bedrock Standards of Conduct," provides a concise summary of the entire instruction. Those bedrock standards of conduct are:

1. Avoid any action, whether or not specifically prohibited, which might result in or reasonably be expected to create the appearance of:

— Using public office for private gain,

— Giving preferential treatment to any person or entity,

— Impeding Government efficiency or economy,

— Losing complete independence or impartiality,

— Making a Government decision outside official channels; or

— Adversely affecting the confidence of the public in the integrity of the Government;

2. Do not engage in any activity, or acquire or retain any financial or associational interest, that conflicts or appears to conflict with the public interests of the United States related to your duties;

3. Do not accept gratuities from Department of Defense contractors unless specifically authorized by law or regulation;

4. Do not use your official position to improperly influence any person to provide any private benefit;

5. Do not use inside information to further a private gain;

6. Do not wrongfully use rank, title, or position for commercial purposes;

7. Avoid outside employment or activities incompatible with your duties or which may discredit the Navy;

8. Never take or use Government property or services for other than officially approved purposes;

9. Do not give gifts to your superiors or accept them from your subordinates when it is not appropriate to do so;

10. Do not conduct official business with persons whose participation in the transaction would violate law or regulation;

11. Seek ways to promote efficiency and economy in Government operations;

12. Preserve the public's confidence in the Navy and its personnel by exercising public office as a public trust;

13. Put loyalty to the highest moral principles and to country above loyalty to persons, party, or Government department;

14. Uphold the Constitution, laws, and regulations of the United States and never be a party to their evasion;

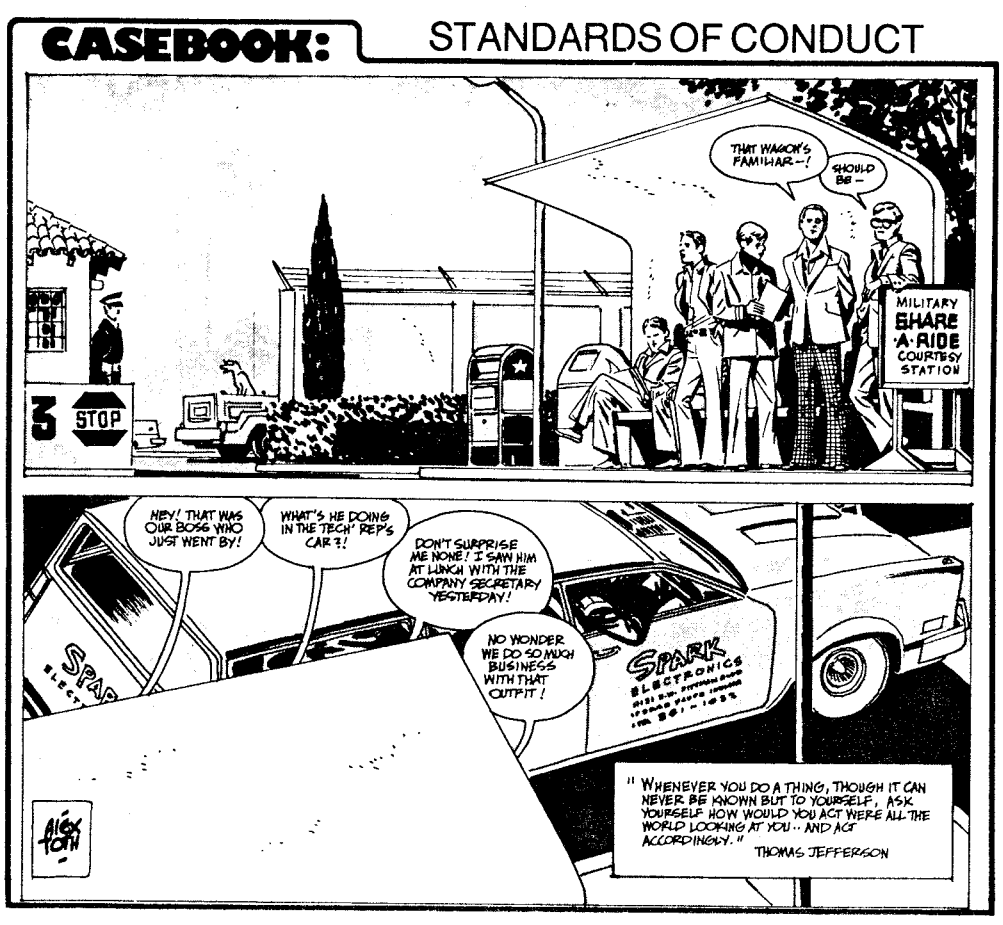
15. Give a full day's labor for a full day's pay, providing earnest effort to the performance of duties;

16. Never discriminate unfairly by the dispensing of special favors or privileges to anyone, whether for remuneration or not, and never accept for yourself or for family members, favors or benefits under circumstances which might be construed by reasonable persons as influencing the performance of Government duties;

17. Make no private promises of any kind binding upon the duties of office;

18. Do not engage in business with the Government, either directly or indirectly, inconsistent with the conscientious performance of Governmental duties; and

19. Expose corruption wherever discovered.



Letter to the Editor

Recycling

Dear Editor:

If school children can sort their cafeteria trash for recycling, why can't NADC employees? It grieves my soul to see all the trash we generate here, especially the styrofoam.

A way to cut down on the number of styrofoam cups might be to sell cafeteria hot drinks to anyone who brings their own mug for a few cents less.

Karen Nilsen, Code 2021

NADC Reflector

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NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA

The *REFLECTOR* is published monthly by the Public Affairs Office to inform Center Personnel about topics of interest, and to promote the morale and general welfare of all concerned.

Views and opinions expressed in this publication are not necessarily those of the Department of Defense.

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Commander, NADC ..... **CAPT Curtis J. Winters**
Technical Director ..... **Guy C. Dilworth, Jr.**
Public Affairs Officer ..... **James S. Kingston**
Editor ..... **Mary Ann Brett**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Last P-3 delivered; oldest one at NADC

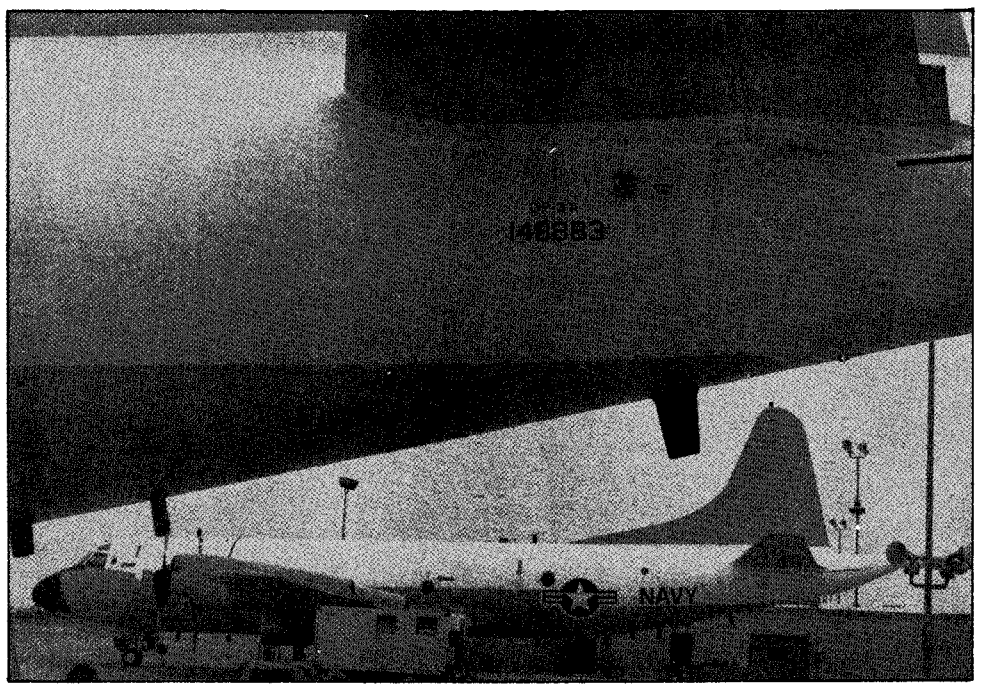
By JO2 Michael Delledonne

It's over. After nearly 31 years of service, the last P-3 aircraft was delivered to the Navy's UP-91 located in Moffett Field, Ca. on April 17, 1990.

The P-3 Orion has had a long and successful career since November 1959 when the YP3V-1 prototype made its initial flight. The first real test for the aircraft came during the Cuban Missile Crisis in October 1962. Three separate squadrons deployed aircraft six months early to Bermuda and the Azores to monitor Soviet cargo ships. In May 1975, a P-3 aircraft located and assisted in recovery of U.S. Merchantman Mayaguez captured by Cambodia: The aircraft's first Atlantic and Pacific Fleet deployments were made in 1963 and 1964, respectively.

The last but not least was the first production P-3C Update III delivered to UX-1, located in Patuxent River, Md., in May 1988.

With the P-3's last delivery, you may wonder where the oldest flying P-3 is located? It just so happens . . . NADC! The airplane "148883" was accepted by the Navy March 31, 1961 and transferred to the Center on January 15, 1971. The total aircraft hours as of April 20 amounted to 11,126 with 3,341 total landings. Some of those flight hours and landings were logged by the Ensign Curtis J. Winters in November 1964, now Captain Curtis J. Winters, Center Commander.



Old # 148883 is the Navy's oldest active P-3. The aircraft is assigned to NADC.

Good ideas are worth $$$

Good ideas are worth money--both in short or long term savings to the Center and in cash awards to the suggestors. Five such suggestions from across the Center were adopted during April and May 1990.

The suggestors, suggestions and awards are:

Thomas McLaughlin for "Paint and illuminate Ramp Bldg. 2," $100.

Karl Bryan for "Equipment markings," $100.

Philip T. Morrissey for "Change piping on Bldg. #259," $785.

George Sterling for "Change piping on Bldg. #259," $785.

Scott Finken for "Building 108 door bell," $25.

Federal Women's Program

Women's Equality Day set

By Elaine Picard

The Federal Women's Program Committee will celebrate Women's Equality Day on Thursday, 16 August 1990 with a luncheon at the Blair Mill Inn. Women's Equality Day commemorates the passage of the 19th Amendment to the Constitution on 26 August 1920 granting women the right to vote. The guest speaker will be Philadelphia Court of Common Pleas Judge Lisa A. Richette, a nationally recognized jurist, author, lecturer, and activist for women and human rights. A graduate of the University of Pennsylvania and the Yale Law School, Judge Richette was appointed one of the first female Assistant District Attorneys in Philadelphia. She served for ten years as Chief of the Family Court Division before entering private practice. In 1970, Judge Richette was appointed to her current position. She is the founder of several organizations for women and children and has won awards for public service.

As part of the Women's Equality Day celebration, the Federal Women's Program Award For Excellence will be presented to an NADC employee who has made a significant contribution to the enhancement of female employees at the Center and/or in the local community through volunteer work, mentoring, and counseling and has, at the same time, shown excellence in their own career achievements. The award is open to all employees and nominations are being accepted by the EEO Office until 6 July 1990.

For luncheon tickets, contact Elaine Picard, Ext 1694 or Marge Russo, Ext 2660.

Total Quality Management Looks to the Future

According to the Navy News Service, the Department of the Navy's Council for Total Quality Management (TQM) is currently designing courses for Navy leaders to educate and streamline management techniques.

Undersecretary of the Navy J. Daniel Howard chairs the DON Executive Steering Group (ESG), which includes the Vice Chief of Naval Operations, Assistant Commandant of the Marine Corps and other senior level flag and civilian DON officials. The ESG meets monthly to provide leadership and education for the Navy's installation of TQM.

Recently, the ESG approved development of a Senior Managers Course, using DON resources to outline TQM principles to commanding officers, department heads and other key leaders. Other courses will be developed for use throughout the Navy and Marine Corps.

"Survival skills" presented

By Carole Preston

The Administrative, Secretarial, and Clerical Group of the Federal Women's Program will sponsor a lunchtime seminar entitled "Playing the Business Game . . . Survival Skills," on June 27th in the Center Auditorium at 1100. The featured speaker will be Adrienne Mendell, a Clinical Psychologist from the Philadelphia area. Ms. Mendell's talk focuses on the fact that there are "unwritten rules" for the game of work. In order to be competitive it is necessary to learn these rules.

Men approach their work with the same mindset they use in competitive sports. Both competitive sports, and the workplace are run by a set of unwritten rules familiar to most men but unknown to most women. Unfortunately, men don't know that women don't know these rules.

Developed from a series of interviews with very successful men about how they view their work, and the women with whom they work, this seminar teaches women what the world looks like through a man's eyes.

It will identify common self-defeating behaviors of women and open avenues for change. The overall goal of this seminar is to foster better understanding between women and men to maximize the effectiveness of both sexes at work.

Who they are; What they do

By JO2 Michael Delledonne

"Since I was a little kid, I'd always wanted to join the Navy," said Aviation Antisubmarine Warfare Technician First Class Donna Roper. "Actually, I was in for a month before I told my mom."

The 29-year-old from Lanham, Md. is a day check supervisor. "My job is to keep everybody busy. I get them out on the planes, make sure they're trained and have their Personal Qualification Standards (PQS) signed off," explained Roper.

Roper, stationed at the Center for five months, said the work never gets boring. "There is always something going on with one of the airplanes," she said. "This is not your typical Navy command because there are always new jobs coming in. At a regular command, you know what you're doing now will be what you're doing six months from now. Here, you know there will never be a dull period and that keeps the job fun."

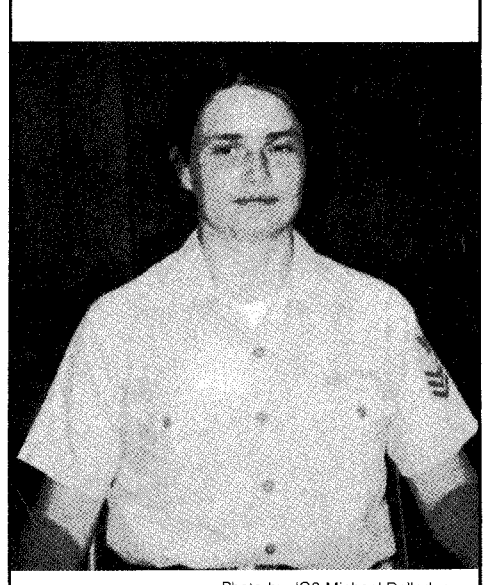


Photo by JO2 Michael Delledonne

Donna Roper

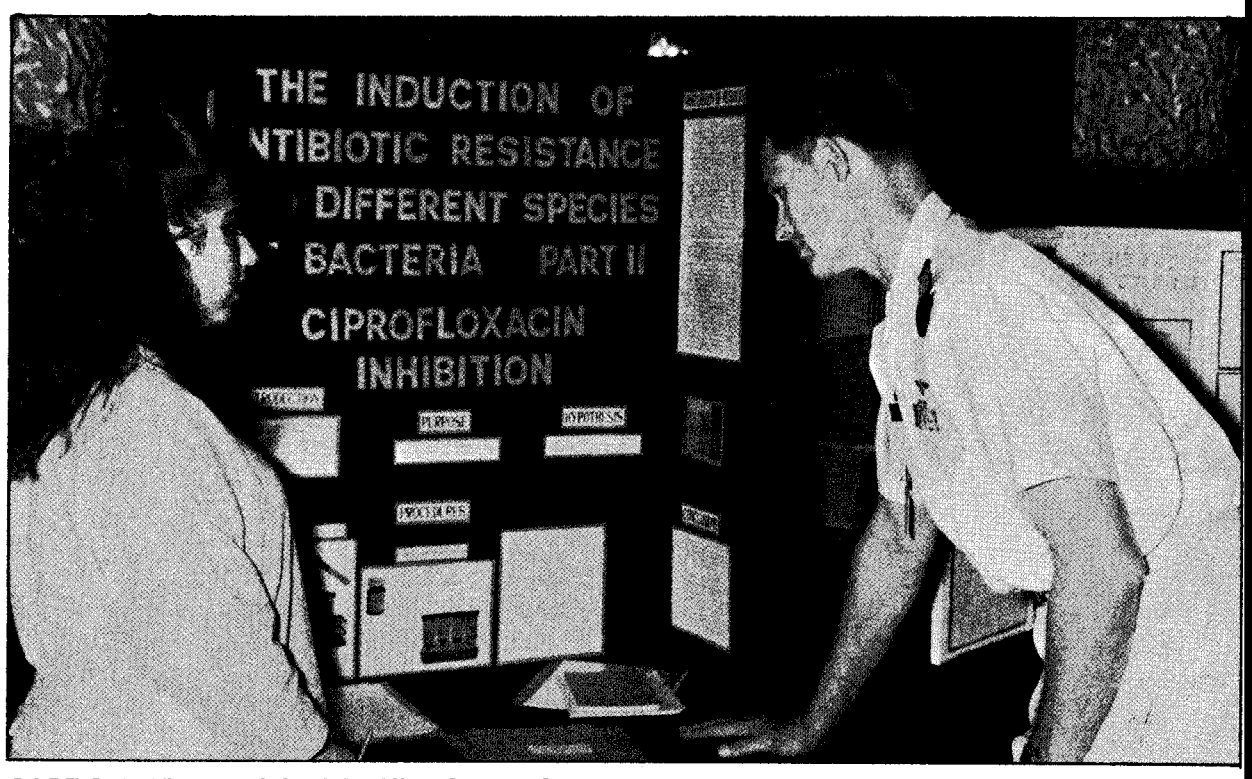
Security Reminder

Working spaces that must be left unattended during the working day should be locked to protect equipment and property therein. All office and laboratory spaces must be locked at the end of each working day.

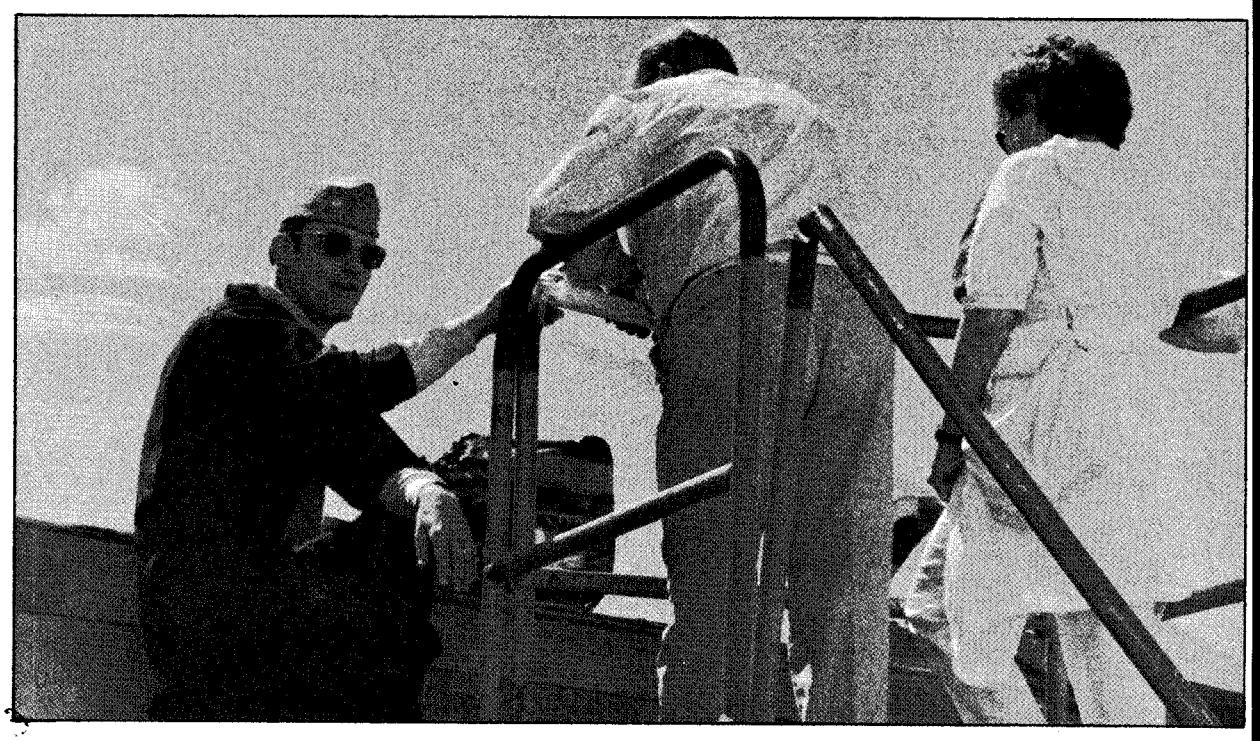
Part of the estimated crowd of 5,000 visitors to NADC's Armed Forces Day Open House lined up to see visiting aircraft depart.

Photos by NADC Photo Lab.

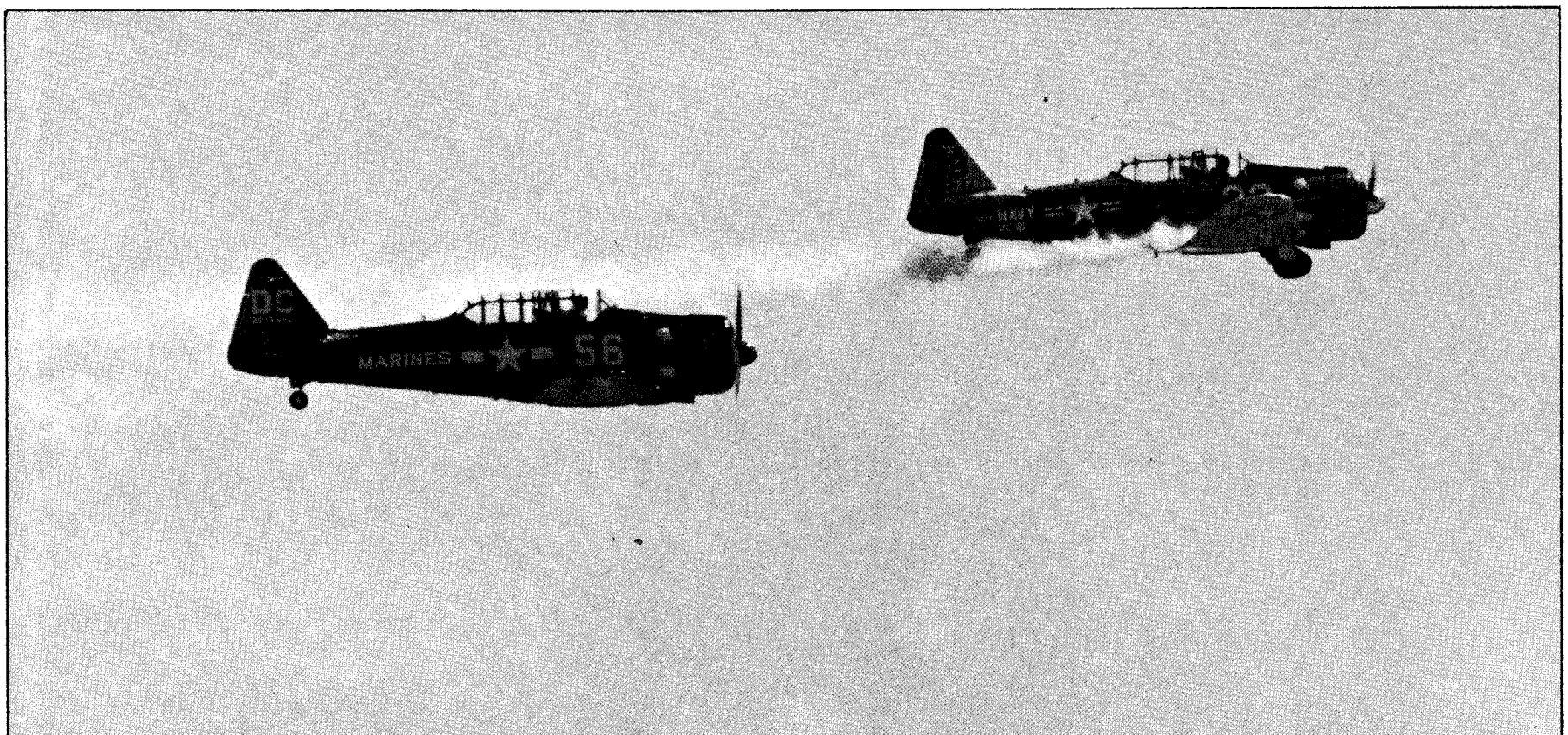
The Air Force Reserve's 913th TAG exhibited this C-130 "Hercules".



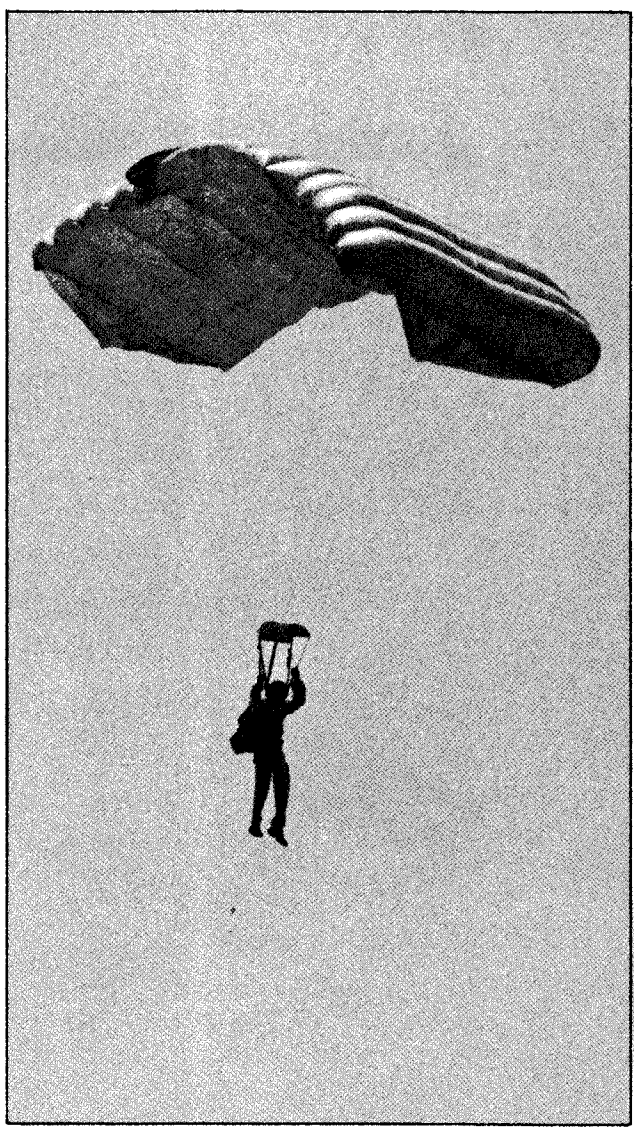
CAPT C.J. Winters visited the High School Science Fair booths and was impressed with the variety of student projects.



LCDR Mike Messick explained the working of the Center's F/A-18 "Hornet" to guests.

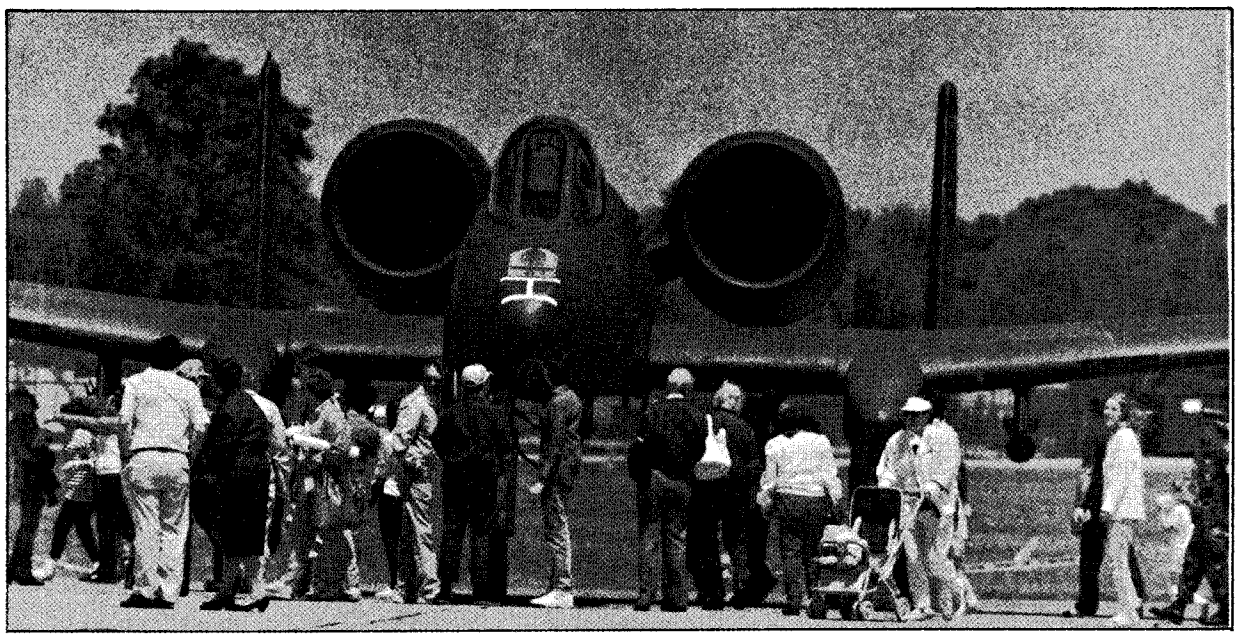


Members of the "Warbirds" showed off their vintage aircraft by doing several fly-by's as they left for home at the end of our Open House.



Lending high drama to the day's events, this Air Force Combat jump team member "dropped in" to our Open House"

Visitors lined up for an opportunity to see a P-3 "Orion" close up and tour inside.



An Air National Guard A-10 attracted a lot of attention with its two huge jet pods.

OPM proposes major civilian pay reform

By Evelyn D. Harris
American Forces Information Service

Federal employees could see higher pay in high-cost areas and raises tied to performance rather than service time if an Office of Personnel Management draft proposal takes hold.

The proposal still faces revisions by Congress. Still, Frank Cipolla, director of personnel management in the Office of the Assistant Secretary of Defense (Force Management and Personnel), likes what he's seen so far.

"DoD is very supportive of this pay proposal," Cipolla said. "It addresses our needs to be more competitive in the markets around the country where we recruit for talent."

Office of Personnel Management officials said the proposal, if adopted, will allocate payroll dollars so that the government no longer substantially overpays workers in some locations and occupations while severely underpaying others. With more authority over pay policy, DoD and other federal employers can be more sensitive to market needs, they said.

The draft recommends restructuring the federal pay system over the next several years. In January 1994, the GS, or general schedule, would be split into parallel "national" and "local" schedules. Professional and most administrative employees, who are recruited nationwide, would be paid on a national scale based on a survey of comparable jobs in the private sector and state and local governments.

Geographic differentials would be paid where necessary to compete in local labor markets. Pay for clerical, technical and selected administrative employees would be set locally, based on similar jobs in their localities.

The National System would have 11 grades, NS-10 through NS-20, equating to GS-5 to -15. One senior pay band above NS-20 would cover GS-16 to -18; basic pay for this band would be set separately. The Local System would have 15 grades, LS-1 to -15, equivalent to GS-1 to -15.

The proposal has some "immediate relief" provisions that would be effective January 1991. One provides a 5-percent-of-pay bonus for employees in college graduate-type entry positions at GS-5 and -7 nationwide. In congressional testimony, OPM Director Constance B. Newman said the bonus is necessary because, "While our rates for many types of workers are competitive in many places, we face continuing difficulty competing with other employers at this critical entry point."

Also effective in 1991 would be geographic differentials of up to 8 percent for GS employees in the New York, Los Angeles and San Francisco metropolitan areas. Newman said agencies in these areas have expressed the most difficulty recruiting workers and need relief now. Differentials — as much as 25 percent of basic pay under the draft proposal — could be offered later in other cities where deemed necessary.

Other immediate-relief provisions are the extension to all grades of an existing authority that permits agencies to hire superior candidates at a step level above the minimum of the grade (current authority applies only for GS-11 and above) and bonuses to help recruit, retain and relocate employees with critical, hard-to-find skills.

Step increases — pay raises for time in grade — would be eliminated by the current draft for all but junior clerks and technicians. Professional and administrative employees on the national pay schedule would instead be eligible for merit increases and cash awards for performance ratings of "fully successful" or better. An OPM official said these awards would be in addition to existing incentive award programs.

Employees on the local schedule would receive automatic step increases until they reach the average local wage level for their jobs, but they could still receive further merit step increases. Generally, the increases would be 2 percent to 10 percent of basic pay.

Incentive awards are going to be more important under the new system, OPM officials said. One new idea in the proposal allows managers to give employees non-chargeable leave — free time off — as an alternative to financial awards "for superior accomplishment or other personal effort that contributes to the quality, efficiency or economy of Government operations."

The elimination of step increases is a controversial aspect of the new pay plan. Government union leaders have said this part of the proposal won't work and would lower morale. OPM Director Newman has responded to these concerns by citing numerous studies, in particular a recent one done by an independent research firm, the Wyatt Company. She said all these studies support the concept of pay for performance.

Technical Highlights

Tactical Airborne Reconnaissance Pod System TARPS Enhancement Program

The following in-house developed and integrated systems for Tactical Airborne Reconnaissance Pod System (TARPS) were delivered to the fleet: new KS-153 sensor with 610 mm tri-lens and NAVAIRDEVCEN developed interface unit and Mobile ground support and diagnostic system.

Anechoic Chamber

The new Anechoic Chamber at the Full Scale Antenna Test Facility is now under construction and is scheduled for completion 20 October 1990. Test equipment for antenna measurements is on order and scheduled for delivery prior to chamber completion.

TSAPARAS LAB

Visitors from the Space Station Freedom program (NASA Lewis) visited the G. Tsaparas Electrical lab located in the Electrical & Flight Control Systems Branch. NASA is now adopting 160 VDC electrical system and required our expertise in DC electrical power systems.

Pale Seat

The PALE seat section of the reclined seat program has been completed on the centrifuge. The Reclining Seat section has been started, with the installation of the seat. Test work is scheduled to begin on 30 April. The G Tolerance Improvement Program is now running on Thursdays.

NACES

The NACES Qualification program on the ejection tower completed the verification and calibration shots. Manned testing is scheduled to begin in May.

Refurbishment of the Fuel Fire Test Facility was completed. A brake was added to the jib crane, a new liner was added to the pit, the fuel piping was replaced, and the propane regulator was replaced. New personal protection was received, as well as old equipment rebuilt.

Environmental Chamber

The new Environmental Chamber was completed. Systems testing occurred during the month of April, with testing to begin in the near future. Walt Soroka, Crew Systems Facilities Engineering Branch, has been involved in all aspects of the new facility.

P-3 Acoustic Program Enhancement APE

The Naval Air Systems Command (NAVAIR) has assigned the P-3 Update IV Project the task of developing an Acoustic Program Enhancement (APE) Program for the P-3 Update IV AN/UYS-2 acoustic baseline. The acoustic enhancements include a three-pass normalizer, analysis band changes, and a tactical surveillance system. These improvements are to be developed and tested by the Center over the next 36 months before delivery to Boeing for incorporation into the Update IV system. A dedicated team is being staffed by the Center for this effort.

Enhanced Tactical Surveillance Sonobuoy ETSS Type "A" Spec. Developed

A final type "A" specification has been prepared for the Enhanced Tactical Surveillance Sonobuoy (ETSS) by the Systems Integration Branch. This specification defines the interfaces between the senior and the platform. The ETSS is scheduled for Demonstration/Validation testing starting in the third quarter of 1991. The ETSS will provide the Fleet with an improved sensor capability, a communication link, and shorter on-station time for ASW patrol aircraft.

INIGHTS

The final evaluations of the three competing helmet/night vision system designs have been completed. A summary briefing was presented by the TASD project engineer to NAVAIR Headquarters human factors personnel and representatives of the F-18 program. A determination by NAVAIR is pending as whether to proceed with flight testing of one or more of the current designs, at the Naval Air Test Center, while NADC completes some follow-up evaluations on further modified units. Center assessment of the INIGHTS helmet systems included Air Vehicle and Crew System personnel evaluations on our drop tower/ejection facility, in the Dynamic Flight Simulator and in wind blast simulations; and Mission Avionics evaluation of the INIGHTS optical systems. Data was also shared with the USAF National Guard, which is pursuing INIGHTS compatibility with their aircraft.

DARPA Support

NADC initiated new tasking entitled High Risk Advanced System Concepts in support of DARPA. Objectives of this task are to provide technical expertise for conceiving, developing and procuring advanced air system concepts, program management support, and on-site review support for on-going DARPA programs.

AIWS

The Advanced Interdiction Weapon System (AIWS) detail structural specification and statement of work for the full-scale development phase of the program were completed by the Aero Structures Division. The AIWS program is currently in the demonstration/validation phase in which three separate contractors are participating. The detailed Structures and Materials Specification has, in addition to addressing AIWS needs, been prepared for applicability as a general specification for stores, missiles, and unmanned air vehicles.

NADC Named Technical Agent

Marvin Walters met with representatives of the Naval Technical Intelligence Center (NTIC) and the Defense Intelligence Agency (DIA) at DIA to discuss plans for NADC to become the technical agent for upcoming wind tunnel tests sponsored by NTIC/DIA.

NADC Has Lead On Trainer

PMA-200 has formally submitted a budget request to OP-59 for the Navy JPATS primary trainer source selection process which cites funding for NADC as lead field activity through FY-96. Funding this year will be $260K and will peak at $500K/YR in FY-92-93. Our first task will be drafting the DOP (Development Options Paper) for PMA-200, starting now. J. Eney is the Code 60 focal point; Bob Fay in Code 20 is the Center Focal Point.

NADC radar images Arizona crater

continued from page 1

applied and necessary research effort. Since we don't have deep pockets to do research, it was very fortunate that Kevin Birney (code 5022) identified an opportunity for collecting crater data while the NADC SAR aircraft made a trip to California. He also coordinated data collection mission with T&E. For that particular flight, our own CO, Capt. Winters was the pilot. Steve Lyness (code 5024) and Tim McMichael (SEMCOR) resolved navigational issues, operated the SAR, and collected the SAR data over the crater, enroute to and from California, on April 16 and 18 respectively. The data processing for the image of the crater shown here was accomplished through the efforts of Jeannette Evans-Morgis (code 5024), Andy Dill and Fred Ilsemann (both of JJM).

Besides using the calibration results from the Crater imagery to open some funding doors for us at, for example, ONR, the data will be used to support some analysis of SAR work currently funded by the Center's IR/IED program. In addition, Kevin Birney (code 5022) is looking at the possibility of doing an analysis of our crater data for his Master's Thesis at Penn. State Uni. Furthermore, SAR image processing techniques, developed under an NADC contract by Professor H. Kritikos at the U. of P. can be applied to our SAR crater data to extract linear features for calibration purposes.

An interesting historical reference exists for Meteor Crater studies done by G. K. Gilbert in 1893. In his studies, Gilbert used crude magnetic measurements in his attempt to locate an expected valuable iron body which he assumed formed the crater and was buried somewhere below the crater's floor. In Gilberts period, the physics of impact cratering events was not established. Now, we know that the impacting body and some of the Arizona real estate was vaporized in the explosive collision that formed Meteor Crater. So, except for some small fragments, the iron body was destroyed in the collision. In any case the fundamental magnetic principles applied by Gilbert are in essence the same as those used by the Navy in Magnetic Anomaly Detection for detecting and locating a submerged submarine via the magnetic field anomaly caused by the iron in a submarine!

Next century to see new measuring system

By Michael Blank, P.E.

Before the end of the next decade, we will be using the metric system of measurement. This change is inevitable. "It is in the best interest to have industry change to metric," said G. Underwood, Director of Metric Programs for the Commerce Department.

Underwood pointed out that much of Commerce's scientific work, including weather forecasting, is conducted using metrics. "All information is recorded, stored and maintained using the metric system and it's converted for your convenience." Here are some examples — we are already using a decimal system in our monetary system and in the photographic industry 8, 16 and 35 millimeter sizes for cameras will not change. Several other units of measurement that we currently use will not be changed. Time measurement will continue to be measured in hours, minutes and seconds. The electricity we consume will continue to be measured in watts.

In addition, many products in our daily lives have both the customary and the metric units of measurement printed on their labels.

Changing from the traditional customery system of measurement (the foot and the pound) to the metric system of measurement (meter and the kilogram) is a very complex and challenging process and involves many factors like technology, human emotions, economics, sociology, traditions and international relationships.

The metric system formally called the International System of Units (SI) is divided into three classes: base units, supplementary units and derived units.

Base Units — SI is based on six well-defined units which by convention are regarded as dimensionally independent:

	SI UNIT	
Quantity	Name	Symbol
Length	meter	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	degree kelvin	K
Light intensity	candela	cd

Supplementary Units — The units listed below are called supplementary units and may be regarded either as base units or as derived units:

	SI UNIT	
Quantity	Name	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units — Derived units are formed by combining base units, supplementary units, and other units according to the mathematical relations linking the corresponding quantities. The symbols for derived units are obtained by means of the mathematical signs for multiplication and division:

	SI UNIT	
Quantity	Name	Symbol
Area	square meter	M^2
Volume	cubic meter	m^3
Velocity, speed	meter per second	m/s
Acceleration	meter per second squared	m/s^2
Density, mass density	kilogram per cubic meter	kg/m^3
Luminance	candela per square meter	cd/m^2
Power	watt	W
Force	newton	N
Thermal conductivity	watt per meter-kelvin	w/m.k
Frequency	hertz	Hz
Electric resistance	ohm	Ω

Association of Naval Aviation wants your support

By the Association of Naval Aviation

In Washington decision-making circles, the Association of Naval Aviation (ANA) is known as a source of reliable, factual information regarding maritime and naval aviation issues. It is well known that the intense efforts of ANA have been crucial in many of the cases in which success, from the Navy viewpoint, was achieved. Some of those areas were:

Supporting continued modernization of Naval Reserve ASW assets. ANA took the lead in approaching individual members of the Appropriations and Armed Services Committees of both Houses of Congress on the need to backfit Reserve P3A & B aircraft with TACNAV equipment to enable effective operation in ASW role without LORAN ALPHA.

Obtaining Congressional authorization and funding, over President Carter's threatened veto, for another nuclear powered aircraft carrier in the FY-80 budget. That ship, the USS THEODORE ROOSEVELT, has been referred to by the Secretary of the Navy as the "ANA carrier."

Supporting CNO's initiatives for improved officer and enlisted compensation and retention package. The added weight of ANA's chairman and senior officers ensured a majority in both houses of Congress in increasing officer and enlisted benefits.

In addition to the work done through ANA headquarters, local squadrons, such as the Pitcairn Squadron based at NAS Willow Grove, are called upon to provide public education on matters pertaining to maritime, and especially Naval Aviation. This challenge requires dedicated men and women who believe in the necessity of Naval Aviation as the prime defense of the free world, and in being prepared to take on an offensive role, should the need arise.

If you are interested in supporting our active and reserve Naval Air personnel along with the goals of the Chief of Naval Operations, contact one of the following Squadron Officers:

Wesley Keely (215) 482-3600, or (215) 735-2425

Courtney Yelle (215) 355-3292, or (215) 657-4020

Mer Claar (215) 968-6469

Commander Salutes

continued from page 2

Stuart Boose, Mike Umehara, (Code 50), **Paul Lubiejewski, Tom Haug, Tim Fitzpatrick,** (Code 60), **Andrew Schwartz, Dave Stasen, Tom Gould, Phil Huber, Jim Lezoche, John Devalle, Henry Muir, Larry Capilli,** (Code 80), **William Myers,** (Code 90): For support to the National Security Agency on Project SABERSAW.

Marlene Grubb (Code 03), **Robert James** (Code 09), **Charles Ballaro** (Code 90): For your participation as an instructor in the Contracts Law Course.

Dr. Asha Varma (Code 01B): For originating and serving as chairperson for the 1990 Research and Development Information Exchange Conference.

Robert Fay (Code 20): For support provided at the D.O.D. Independent Research and Development On-Site Review.

CDR Michael W. Mentas, Stephen Elchenko, Frederick Stowell, (Code 10); **John Custy, Jeffrey Miller, Joseph Reiter, Stephen Garber,** (Code 40), **Donald Miller, Robert Connison,** (Code 50): For dedicated effort and professional technical performance in supporting RANGEX 1-90.

Corin Beck (Code 60): Congratulations on receiving the CNO Cooperative Education Recognition Award for Science and Engineering.

Thomas Sanders (Code 40): For fine efforts as Vice-Chairman of PLANS '90.

Robert Palaneczky, William Halcomb, Howard Schectman, Major John Preston, CF Joseph Camaroni (Code 10): For efforts in providing technical support to the Naval Air Systems Command for the CP-901A tactical computer modernization program.

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

Softball league achieves parity (almost)

By Jack Eyth

Sure, there are still teams with great records (Renegades 6-1, Misfits 6-1) and teams with not so great records (Dynatigers, 0-10), but at the half-way point in the season it appears that this is the most balanced collection of softball teams our league has had in many years. There have been upsets galore, and many teams which have traditionally had losing records are now around .500. To quote an old NFL cliche, "on a given day, any team can beat any other team." Check-out some of these scores: Sand Fleas over 8th inning, 7-5, Orange Crush over the Renegades, 5-3. What it all means is that this league is finally becoming unpredictable! Although many of the old-time NADC baseball players remember the glory days when pitchers like Bob Barlow, Bob Carroll, Gary Averill and Hank Sowa dominated the hitters and the game scores were 1-0 or 2-1, this generation of teams tends to rely less on pitching and more on defense, key hits and an occasional fielding error to pick up wins. Even the home-run totals are down thanks to new limited-distance softballs. Is it better baseball? Who cares, more teams are more competitive and having more fun!

Of special note this month is an unusual game between the Phantoms and the Life Supporters. The first victory of the year for the Life Supporters (and first loss for the Phantoms) was a 9 inning, 3-2 heart-stopper in which Phantom's phenom pitcher Clay Vind struck out 20 batters, walked 10, and wound up losing in the bottom of the ninth on a bases loaded flare single by Life Supporters Captain Dan Schmidt. Retread pitcher, Jack Eyth (one strikeout, one walk) pitched the game of his life to notch the victory with outstanding backup by the Supporter's defense.

The standings as of 1 June are shown below. Notice that the Bearcats have surged to a 5-4 record behind the veteran pitching of Skip (Edgar) Reed, the Orange Crush has a .500 record at 4-4, and the Sand Fleas, at 4-5, are continuing to surprise people with steadily-improving pitcher John Duvall. What in the world is wrong with the Intimidators?

League Standings, 1 June 90

Team	Wins	Losses
Renegades	6	1
Misfits	6	1
Granfalloon	6	2
8th Inning	5	2
Rebels	5	3
Bearcats	5	4
Orange Crush	4	4
Sand Fleas	4	5
Phantoms	3	4
Herassers	3	5
Intimidators	2	4
Life Supporters	2	6
Dynatigers	0	10

Mixed league bowling news

By Tom Reiter

Congratulations to our league champs, From The Gutter. Captain Lorraine Williams did an outstanding job of whipping her horses into contention and becoming eventual champions. Led by their high roller, Rick Yeager, they captured their first title by closing fast and beating last year's champion Gutter Dusters, and our first and second half winners, the Goofers and the Magic Markers in an exciting rolloff.

Our annual awards banquet was held on June 8th, and as usual we had a rocking good time. In addition to fine wine, food, and music, the following bowlers from both of our Divisions were recognized with an appropriate award. Names with an asterisk had already received a higher award.

LEAGUE CHAMPIONS — FROM THE GUTTER
Lorraine Williams (Captain)
Dave Williams
Rick Yeager
Susan Yeager
Randy Yeager
Bill Pohle
Char Pohle
Nora Nernandez
Steve Russo
Jeff Lamb
Carol Peniston
Steve Natishin
Ron Roadarmel

DIVISION A CHAMPIONS
FIRST HALF — GUTTER DUSTERS
Wes Gleason (Captain)
Ann Fowler
Mary Vaughn
Bruce Vaughn
Aaron Davidson
Pam Kinsky
Jack Kinsky
Chris Zaccaria
Dom Zaccaria
Pete Huber

DIVISION A CHAMPIONS
SECOND HALF — MAGIC MARKERS
Larry Sicher (Captain)
Andrea Sicher
Glen Savage
Lois Savage
Ed Beach
Dianna Beach
Jeff Irvin
Neil Weinman
Lee Bourgeault

DIVISION B CHAMPIONS
FIRST HALF — GOOFERS
Al Knobloch
Lorraine Reidinger
Anne Hoyt
Leo Markushewski
Ed Fields
Carl Frey
Carol Calkins

HIGH AVERAGE -A-
Wes Gleason 186
Linda Stickney 166

HIGH AVERAGE -B-
Rick Yeager 181
Lorraine Reidinger 153

HIGH SERIES -A-
Mike Dent 663
*Linda Stickney 594
Lorrie Dunn 567

HIGH SERIES -B-
*Rick Yeager 624
Al Knobloch 600
Sharon Robinson 577

HIGH SERIES WITH HANDICAP -A-
*Mike Dent 702
Jim Campana 701
Lois Savage 708

HIGH SERIES WITH HANDICAP -B-
Gary Dunn 723
Barb Dilemmo 713

HIGH SINGLE -A-
*Mike Dent 267
*Wes Gleason 256
Steve Jerdan 230
***Lorrie Dunn 229**
***Linda Stickney 224**
Gina Virga 219

HIGH SINGLE -B-
*Rick Yeager 247
Rick Eppright 245
*Sharon Robinson 235
*Barb Dilemmo 217
Elsie Apple 210

HIGH SINGLE WITH HANDICAP -A-
*Mike Dent 281
Harold Wyzanski 271
*Gina Virga 271
Helen Catto 267

HIGH SINGLE WITH HANDICAP -B-
Dave Stewart 272
*Barb Dilemmo 279
*Sharon Robinson 275
Carla Mackey 262

MOST IMPROVED AVERAGE -A-
Steve Jerdan +13
Miriam Lent +10

MOST IMPROVED AVERAGE -B-
Dick Coughlan +11
Dave Oliver +11
Sharon Robinson +12

Monthly walk/runs held

Morale/Welfare and Recreation will begin a series of monthly walk/runs on July 16. Registration will be through the guard mail, or the day of the race in front of the Crews Rest Club. Registration will begin at 11:00 a.m. with the race starting at 11:30 a.m. Awards will be given to the top finisher in each age category. For further information, call MWR at ext. 2510.

Secretary of Defense Independence Day Message

As Americans, we proudly celebrate the 214th Anniversary of our independence while other nations around the world seek the freedom and prosperity we have enjoyed for so long. These benefits have been and continue to be secured by a special group of men and women — the soldiers, sailors, airmen and Marines of our Armed Forces.

Continuing the proud traditions of U.S. military service, you provide the security for the American way of life. Your country needs you now and will continue to need you as the world moves toward an exciting future ... a future you will help to shape.

Liberty and freedom are fragile and must be constantly nurtured and protected. Whether you are stationed at home or across the seas, you are protecting our national interests, our values, and our precious American heritage. Wherever you may be, I wish you and your families a happy and safe Fourth of July.

Dick Cheney
Secretary of Defense

R. MICHI 8132

NADC
Reflector
WARMINSTER

Volume 35 Number 7 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. July 1990

In This Issue:

NADC honors three with prestigious "Fellow" Award

Photo by NADC Photo Lab

James R. Howard, Howard D. Krumboltz (inset), and Harold G. Tremblay are the Naval Air Development Center's newest Fellow Award recipients. Howard and Tremblay display their Fellow medallions. Krumboltz was not able to attend the awards ceremony and Tom Castaldi accepted the award for him.

By Jim Kingston

The Naval Air Development Center conferred the prestigious title of "Fellow" on three more of its former scientists. Presentation of the award took place Friday, June 15, 1990 at the Blair Mill Inn, Horsham, PA. Keynote speaker for the event was Gerald R. Schiefer, Director of Navy Laboratories.

The NADC Fellow Award is given for outstanding achievement in science, technology, engineering, technical leadership, and technical support. The achievement must be evidenced by significant contributions to the Center, the Navy, the United States or other nation. All contributions must be related to NADC's mission. Normally, the award is granted at or following the conclusion of an NADC career. Two have been given posthumously.

Recipients of this year's awards are James R. Howard, Harold G. Tremblay, and Howard D. Krumholtz.

James R. Howard, who worked at the Center from 1955 to 1984, received the award for more than twenty years of outstanding technical leadership in the development of the Navy's

Continued on Page 4

Warminster tax withholding begins *retroactive portion due now*

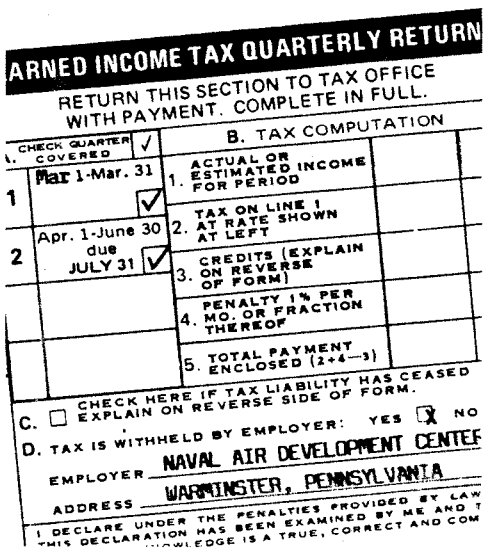
By Jim Kingston

Although the 1% Warminster Wage Tax has been a fact of life since March, we at NADC have not felt its pinch until the last pay period in June when it appeared as a withholding deduction on our Leave and Earnings Statement. That, however, is not the end of the tax story.

Since the tax became effective 1 March, the obligation to pay it started the same date. Just because the mechanics of withholding didn't take place until June doesn't mean that we've been excused for three-and-a-half months of taxes. Presumably, you have all received the Central Tax Bureau's (CENTAX) blue form reminding you to pay your wage tax retroactively to 1 March. Note that the form incorrectly states that we owe from 1 March to 30 June. Actually, we owe from 1 March to 16 June since our withholding began with the pay period ending 30 June.

The tax took effect on a Thursday, so we owe for two days of that week. There have been 15 full weeks between then and the start of withholding . . . therefore, our back tax liability is for 15 weeks, 2 days. If that could be considered good news, the bad news is that it's due by 31 July!

The form received from Centax, contains information originally published by NADC's Comptroller Department in the 15 June edition of its "Financial Flash" memo. If you have questions or require guidance with filing the quarterly return, use the toll free phone number on the blue Centax form: *1-800-439-5400*. Please do not call Payroll or the Comptroller.



EARNED INCOME TAX QUARTERLY RETURN

RETURN THIS SECTION TO TAX OFFICE WITH PAYMENT. COMPLETE IN FULL.

CHECK QUARTER COVERED		B. TAX COMPUTATION	
1	Jan 1-Mar. 31 ✓	1. ACTUAL OR ESTIMATED INCOME FOR PERIOD	
2	Apr. 1-June 30 due JULY 31 ✓	2. TAX ON LINE 1 AT RATE SHOWN AT LEFT	
		3. CREDITS (EXPLAIN ON REVERSE OF FORM)	
		4. PENALTY 1% PER MO. OR FRACTION THEREOF	
		5. TOTAL PAYMENT ENCLOSED (2+4—3)	

C. ☐ CHECK HERE IF TAX LIABILITY HAS CEASED EXPLAIN ON REVERSE SIDE OF FORM.

D. TAX IS WITHHELD BY EMPLOYER: YES ☒ NO

EMPLOYER NAVAL AIR DEVELOPMENT CENTER

ADDRESS WARMINSTER, PENNSYLVANIA

I DECLARE UNDER THE PENALTIES PROVIDED BY LAW THIS DECLARATION HAS BEEN EXAMINED BY ME AND T KNOWLEDGE IS A TRUE, CORRECT AND COM

Warminster tax return show taxes due from 1 Mar to 30 June. Actual dates should be 1 Mar to 16 June.

Center management philosophy: promote women to key posts.

By Margaret Vigelis

The Center is striving to achieve total Quality Management and be a Center of excellence. Toward these ends, we have developed a positive philosophy toward promoting highly qualified women to key management positions. Although we could cite many, two outstanding examples of this management philosophy are Dr. Jine Tseng and Jeanie McCain.

Dr. Jine Tseng is a GM-14 Supervisory Electronics Engineer, former Branch Head, Advanced Processor Branch, Mission Avionics Technology Department. She has recently been named Deputy Department Head, Systems and Software Technology Department.

Jeanie McCain is a GM-14 Supervisory Operations Research Analyst, Staff Specialist for Reliability and Maintainability/ Integrated Logistics Support, Warfare Systems Analysis Department.

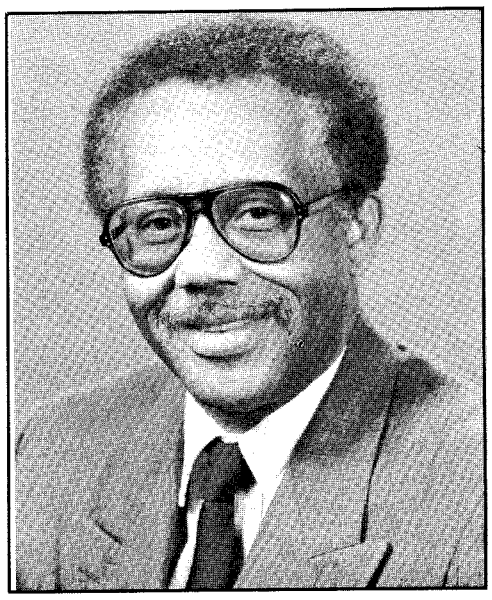
Dr. Jine Tseng views the Center's philosophy this way, "The Center's policy is much more positive than past years and, although long overdue, is definitely heading in the right direction." She feels people have to get used to the idea of women competing and accept the fact that based on the same training, job assignments, and environment, a woman can do the job just as well as a man. In her opinion, the difference is in the individual's capabilities rather than gender. "Whether you're a man or a woman," she says "you have to better yourself

Continued on Page 6

Dr. Jine Tseng Photo by M. Vigelis

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Sexual harassment has no place at NADC

Even in these enlightened times, sexual harassment continues to be a significant problem in the work place. While direction for awareness and control of the problem comes from management, the responsibility to create a productive working atmosphere free of sexual harassment rests with every single employee.

Managers and supervisors must be committed to the policy that sexual harassment in any form will not be tolerated at the Naval Air Development Center or in any of its work-related environments. Furthermore, they must understand and recognize the problem when they see it and, most importantly, deal with it and correct it.

The individual — especially the recipient of sexual harassment — must be ready and willing to express his/her non-tolerance of such action by a fellow employee and be prepared to report it.

Naturally, both managers and individuals will have the full support of Center management in this matter because prevention of sexual harassment is a top priority issue with us. For those who would disregard this policy, we say, your conduct will result in disciplinary action up to and including dismissal.

Let's all work together to rid our work environment of this offensive practice once and for all.

C.J. WINTERS
Commander

GUY C. DILWORTH
Technical Director

Commander Salutes

James White (Code 02), **Robert Finkelman** (Code 05): For presentation to the Naval Air Engineering Center on the Integrated Financial Management Information System.

Chief John Kupetz (Code 04), **LCDR W. Washnock** (Code 90) and Recreational Services Division (Code 04): For dedication and significant contributions to the success of the Family Fun Day on 12 May 1990.

John DeLuccia (Code 60): For your presentation to ASM International, Philadelphia "Liberty Bell" Chapter during their Practical Metallurgy seminar.

Richard Adams (Code 60): For outstanding assistance giver to the Naval Air Systems Command in preparing a procurement package for a major weapon system program.

Lois Kieserman (Code 044): For outstanding efforts and professional attitude displayed during the ASWC Conference.

AD2 Joseph P. Zarzacca, AX2 Craig A. Radomski, AT1 Ronald R. Oulette, AXAN Deena M. Netherland, AT2 Bradley N. Levault, AME2 David C. Blood, AT2 Thomas D. Clay, AO2 Robert J. Hines, AO2 Todd R. Mequet, (Code 90), **AT2 Joseph L. Emperly** (Code 10): For presentation and posting of Colors in our fourth annual Memorial Day Service.

Energy conservation and savings is the bottom line

By Michael Blank, P.E.

Energy conservation and savings is a very important factor in our daily lives and will never go out of style.

There is no doubt that homeowners and tenants are aware of energy savings and opportunities. Fat electrical bills for cooling and heating constantly remind us of it.

James D. Watkins, Secretary of the Department of Energy (DOE) highlighted in an article for "Pennsylvania Energy" new and encouraging approaches to energy issues. They include research and development of new lighting systems, thermally activated heat pumps, which will permit more efficient use of energy in heating and a new kind of glass which saves energy by reducing the conduction of vapor or cool air to or from a home.

Watkins emphasized, "The Department has requested $740 million in the FY 1990 budget for focused and contributing programs related to possible global climate change, such as magnetic fusion which has the potential to reduce CO_2 emissions. DOE is also involved in developing more efficient and cost-effective combustion technologies as alternative energy sources. This work will help to reduce emissions of so-called greenhouse gases."

Let's reevaluate our position about energy savings during the summer season. Air-Conditioning combined with good ventilation is the key to a comfortable and healthful environmental setting in our home.

Remember that natural is often sufficient and energy savings factor in our budget. Ventilation created by natural forces can be enhanced by such design features as roof ventilators, louvers, ridge vents, soffit vents, whole-house fans, ceiling fans, gable vents, turbine vent, and skylight.

The Federal Housing Administration's minimum standard for attic ventilation is one square foot of net-free vent area for every 150 square feet of attic floor. The net-free area consists of free opening of the vent or louver through which air may pass. Please note that insect screens and weather-proofing devices reduce the free area. Usually vents and louvers are stamped with their measured net-free area.

The principal source of home cooling is a whole-house fan, which is installed in a centrally located hallway ceiling that leads to the attic. A whole-house fan creates a negative pressure in the house and exhausts hot air through attic vents. Whole-house fan effectively can be used when the outside temperature is higher than 86 degrees and the humidity level is below 75 percent.

Natural and forced ventilation can be used to supplement air conditioning which can save energy by 20 to 30 percent.

If the SOC fits

By Robert Janes
General Counsel

One area of the Standards of Conduct (SOC) where questions occasionally arise concerns outside speeches or lectures. Under what circumstances may an NADC employee give a speech or lecture at a non-Government function?

The basic Navy policy is to encourage outside speaking, lecturing, and writing, although there are certain rules to be aware of. For one thing, there is a general restriction against the disclosure of inside government information as part of any speech. Moreover, it is often necessary to expressly disclaim any Navy authority for the speech, and state that the views presented are the views of the speaker alone. Finally, speeches covering national security issues or other subjects of significant DoD concern must receive clearance beforehand.

What about payment for the speech? It is perfectly appropriate to accept a reasonable payment for a speech or lecture, so long as the effort is undertaken purely in the speaker's private capacity. In other words, if the government sends you on official travel to make a speech at a symposium, then you may not accept a payment for it because you are already being paid by NADC to perform your official duties. If, on the other hand, you prepare and give the speech on your own time, then a payment is acceptable. An employee cannot accept payment for a speech from an entity or group which seeks to do or does business with DoD, unless the NADC Commander, after consultation with our office, determines that acceptance of the payment will not cause an actual or apparent conflict of interest. In making this determination, we would look at things like the on-the-job relationship of the speaker with the company, etc.

This has been a very general overview of the rules. There is an entire chapter of the Navy's SOC Instruction covering this topic, and as is always the case, I urge anyone with particular questions to contact the Office of Counsel on Ext. 3000 for further information and guidance.

NADC Reflector
NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA
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Commander, NADC ..... **CAPT Curtis J. Winters**
Technical Director ..... **Guy C. Dilworth, Jr.**
Public Affairs Officer & Editor ..... **James S. Kingston**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Technical Highlights

JTIDS: NADC engineers participated in a test of four unit JTIDS net which was established at FCDSSA, Dam Neck. An NADC network was used to successfully demonstrate PPLI, Track and Voice exchanges.

TACAMO: The NADC MILSTAR installation underwent a successful verification test to demonstrate that the provisioning for the MILSTAR communications system was per specification.

LPI Waveform Development

Dr. C. Oh of code 4042 presented a paper at the ONR/ONT Third Navy IR/IED Symposium on 20 June summarizing his award winning IED work. Dr. Oh's presentation "Investigation of Wideband Noise-Like Waveforms for AJ/LPI Communications" was well received by the ONR/ONT hosts.

CV-ASWM Development Options Paper Completed

The Fixed Wing Carrier-Based ASW Program Division has completed and submitted to the NAVSEASYSCOM a Development Options Paper (DOP) for the modernization of the CV-ASWM. This DOP identifies the steps required to update the present Automated Data Processing system and to integrate the CV-ASWM Model 5.0 with the Combat Direction System (CDS). An integrated CDS and CV-ASWM will assist the Battle Group ASW Commander and allow him to make better use of the ASW information.

TECHEVAL Complete for CV-ASWM Model 4.2 System

The Carrier ASW Module Branch has completed TECHEVAL of the CV-ASWM Model 4.2 system. This upgrade to the CV-ASWM provides greater reliability for the module software and incorporates improvements that are compatible with the Fast Time Analyzer System; a new acoustic system. OPEVAL is scheduled to start in October 1990.

ERAPS

The sonobuoy lithium battery pack design successfully passed the battery safety tests.

The "air release" units were successfully deployed from a P-3C at Key West, FL. This successful test will lead to air certification of the ERAPS design.

New Software Released for S-3A

The VS Branch announced the release of Fleet Issue A4.1 software following successful completion of OPEVAL. This software provides the S-3A ASW aircraft with an upgrade to the display projection anomaly, improved Lloyd's mirror depth equations, special weapons modifications, data link improvements, the addition of tape copy capability, and the inclusion of 25 other software changes to both the Tactical Mission and System Test Programs.

Long Range Conventional Stand-off Weapon (LRCSW)

In support of the Long Range Conventional Stand-off Weapon (LRCSW) Program Manager (PMA 285), in the areas of GPS, navigation and guidance, supported the concept definition phase LRCSW Program Management Review 2 meetings. The LRCSW system is intended to be used as a Joint Service conventionally armed, next generation cruise missile. This weapon will be highly responsive, compatible with multiple launch platforms, have significant improvements in range, survivability and accuracy over current cruise missile systems.

RF Component Technology

Mr. E. Ressler of code 4041 applied for a patent for techniques used to optimize the design of an advanced radio relay in the UHF frequency range. The design results in a ten to one decrease in size and weight, and a five to one decrease in power consumption as compared to previous designs.

DISPENSARY UPDATE

This information is provided to familiarize all employees with the NADC Branch Clinic:

Location: Building 16
Hours of Operation: 0800-1600, Monday-Friday
Phone: X3006/3007

STAFF: Senior Medical Officer, V.M. Voge, MC, FS, CDR, USN
Occupational Health Nurse, Maria M. Hare RN, BSN
Leading Petty Officer, T. McCarthy HM1, USN

Services provided by Occupational Health Department:

* Medical Surveillance for exposure to Occupational Hazards
* Job certification/recertification Physicals
* Flight Card Physicals

Civil Service Sick Call — Encourage to use walk-in hours between 0800-0900am, 13-1400pm
Return to work Evaluations — 0800-0900am, 1300-1400pm
Termination Audiograms — Required on last day of employment. Appointment preferred
First Aid for Occupational Injuries — Walk-in 0800-1600pm

IMPORTANT REMINDER TO ALL EMPLOYEES:

a. If **Urgent Care** is required, call X2222 (Fire station) for an ambulance.
b. All persons coming to the dispensary are required to present a dispensary permit when arriving. The only exception is for check-outs and those employees with scheduled appointments. Permits can be obtained through supervisors.
c. In addition to a dispensary permit, employees returning to work after three or more consecutive days of sick leave, must present a note from their physician.
d. Please phone the clinic if unable to keep a scheduled appointment.

* By special appointment *only*.

Photo by NADC Photo Lab.

NMPC's "Professional Achievement Award" is presented to Ron Brewer, head of NADC's Recreational Services by Center Commander, CAPT Curtis J. Winters. This is Brewer's third such award since 1981.

Center establishes business access to federal technologies

By Jim Kingston

The Naval Air Development Center, in cooperation with the Federal Laboratory Consortium and the Pennsylvania Technical Assistance Program (PENNTAP), has established a new technology information pilot program known as "Business Gold." It is designed to provide small and disadvantaged high-technology-oriented businesses with immediate access to information on emerging federal technologies that have commercial application.

Access to the 18-month pilot program is by computer modem over the Bell Atlantic Intelligate[SM] System. It is currently available in the Philadelphia, Pennsylvania area, and is proposed to be extended to Washington, D.C. and beyond. However, the system can be accessed from anywhere in the country simply by placing a toll call.

According to Jerome Bortman, NADC's Technology Transfer Manager, the Business Gold program acts as a conduit for information from several federal agencies sponsoring Research and Development (R&D) programs with commercial value. The service provides abstracts of the technologies and identifies them as available for either licensing or for further development through cooperative R&D arrangements.

The support contractor for the NADC-developed system is Systems Engineering & Management Associates (SEMA) Inc. of Falls Church, VA.

MWR to hold August fashion show

TJ Maxx and Morale, Welfare and Recreation will present a Fall Fashion Show at the Crews Rest Club on August 17. Fashions will be modelled by NADC employees.

Table decorations, provided by Warminster Tree House, will be given away in a drawing at the end of the show. Each guest will receive a special gift for attending.

A buffet luncheon will be served and a cash bar available beginning at 11:30 am. The show will begin at 11:45 and end at 12:30. Shuttle bus transportation from the credit union entrance will be provided. Space is limited. Tickets are $8.00 per person and may be purchased from the Youth Center, Fitness Center, Public Affairs Office, NADC Pool Snack Bar, Crews Rest Club, and in front of the Cafeteria on August 8 from 11 am — 1 pm. For more information, Call MWR at Ext. 2510.

Good ideas are worth $$$

Good ideas are worth money--both in short or long term savings to the Center and in cash awards to the suggestors. Two such suggestions from across the Center were adopted during June 1990.

The suggestors, suggestions and awards are:

Mary J. Franks for "Material Delivery Problems," $100.

Marjorie A. Tausek for "Reserve Tables for Handicapped," $50.

NADC Fellow Awards

(Continued from Page 1)

Airborne Acoustic Anti-submarine Warfare (ASW) System. In the late 1960's, Howard planned and directed the efforts in propagation and noise studies, and computer modeling. This laid the groundwork for the preparation of the Vertical Line Array DIFAR Sonobuoy and Horizontal Line Array Sonobuoy. These two passive sonobuoy system approaches were included in the Navy Technological Forecast and the National Academy of Science ASW Summer Study of 1968. He pioneered the use of advanced and original acoustic technology in standard size sonobuoys that are compatible with present aircraft systems. Howard originated the experiments which demonstrated the advantage of deep hydrophone depths for active and passive sonobuoy systems to achieve greater range on submarine targets.

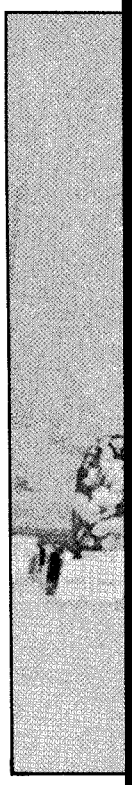
Harold G. Tremblay, a Center employee from 1946 to 1986, was honored for his pioneering efforts to apply computer power to the solution of increasingly complex and diverse engineering problems. During the 1950's, Tremblay convinced the Navy to move the Typhoon computer to the Center. Using this computer, he successfully performed simulations and investigated problems on the Nike anti-aircraft missile, the Sparrow I, II, and III missile systems and the Bulldog air-to-ground missile. The use of these simulations accelerated the development of new aircraft and systems by enabling them to "fly" on a computer long before the aircraft prototypes were built. These simulations permitted designs to be tested and performance analyzed in a laboratory environment rather than through prototypes or actual test flights. This resulted in saving countless thousands of dollars and avoiding accidents by identifying and correcting problems through the computer before building prototypes. Tremblay implemented digital control of the man-in-the-loop real time simulations, a powerful timesharing network and file clusters which could be shared between mainframes. He also implemented the first operational local area network of all the Navy laboratories.

Howard D. Krumboltz served the Naval Air Development Center from 1951 to 1983. He was made a fellow in recognition of his outstanding accomplishments in the field of fiber optic technology as applied to ASW sensor applications. Early in his career, he designed and fabricated microwave receivers which were used to collect original data on microwave propagation losses through a nuclear cloud burst. Under project "Golden Ray," Krumboltz designed and fabricated airborne electronic equipment successfully used to locate and designate enemy missile launching radars during their pre-fire tracking maneuvers. He also designed an optical receiver system which was installed in the submarine USS Quillback. This system was successfully used to detect and record laser pulses. His knowledge of system electronics, electro-optical designs, and laser technology proved invaluable during critical laser system equipment developments and field tests.

Together with the first Fellow Awardees, Charles Bartberger, Louis S. Guarino, Sr., Dr. Harry Krutter, Russell Mason, Dr. B. David Polis, and Dr. Harald von Beckh; the Center has given a total of just nine Fellow Awards, thus making it a highly selective and most prestigious recognition.

The Center's military honor guard trooped the colors at the Awards banquet.

All Photos by
NADC Photo Lab.



Center C Brennan

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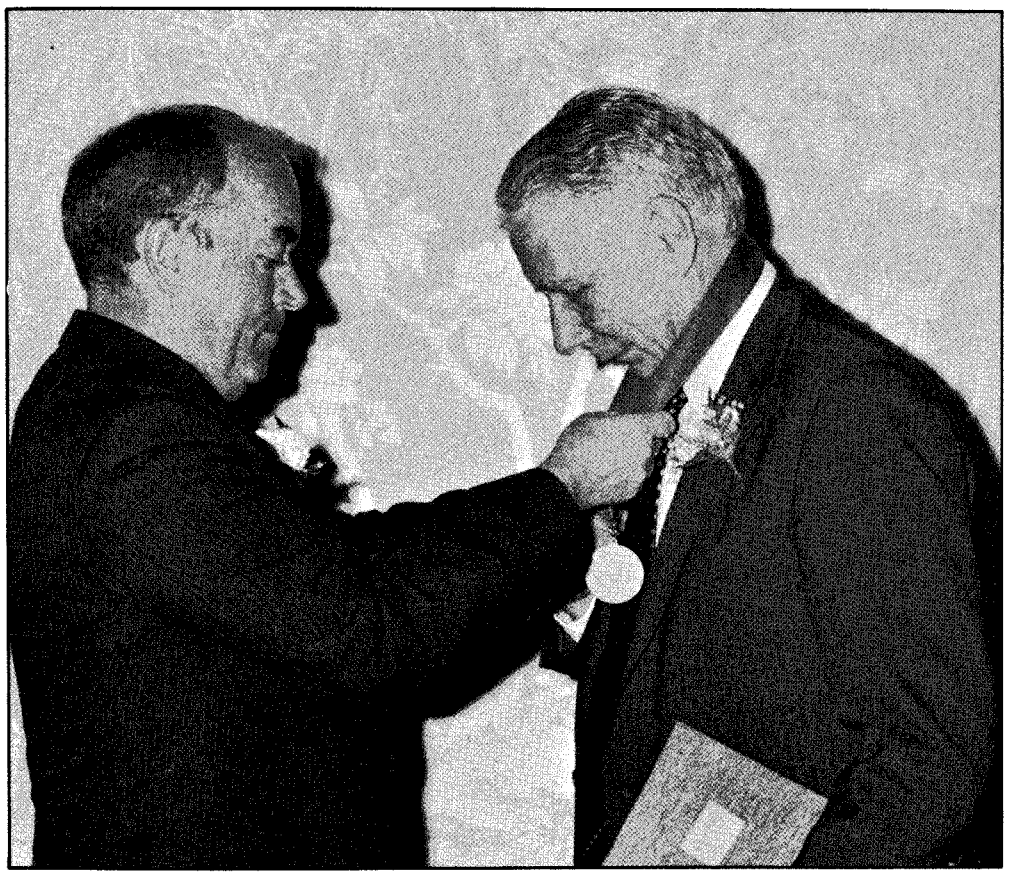
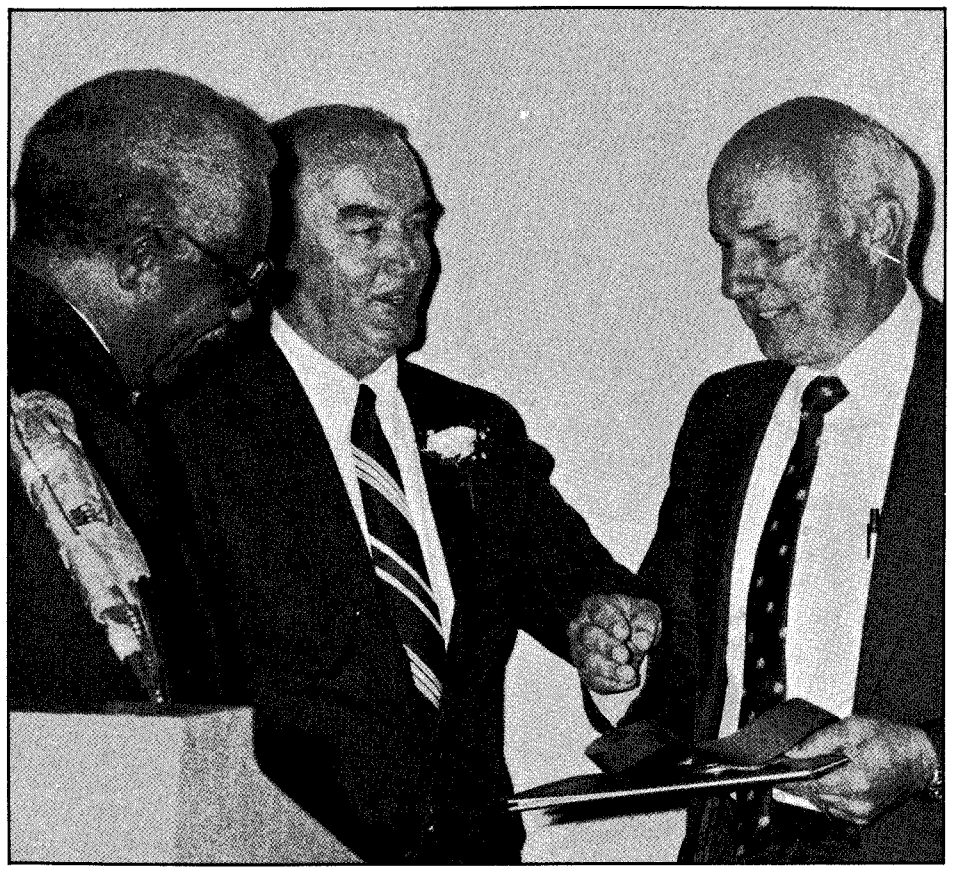


Director of Navy Laboratories, Gerald R. Schiefer presents the NADC Fellow Medallion to James R. Howard.



Guy Dilworth, Technical Director, joins DNL, Gerald Schiefer in presenting Howard D. Krumboltz's Award to Tom Castaldi.

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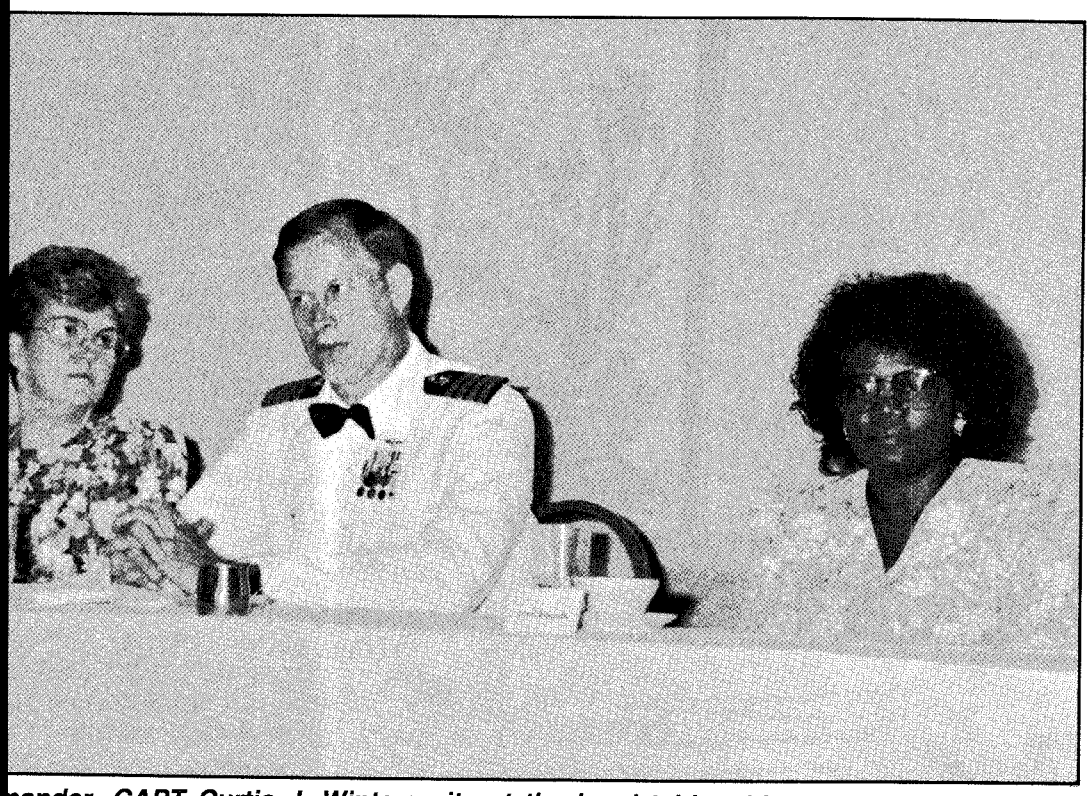
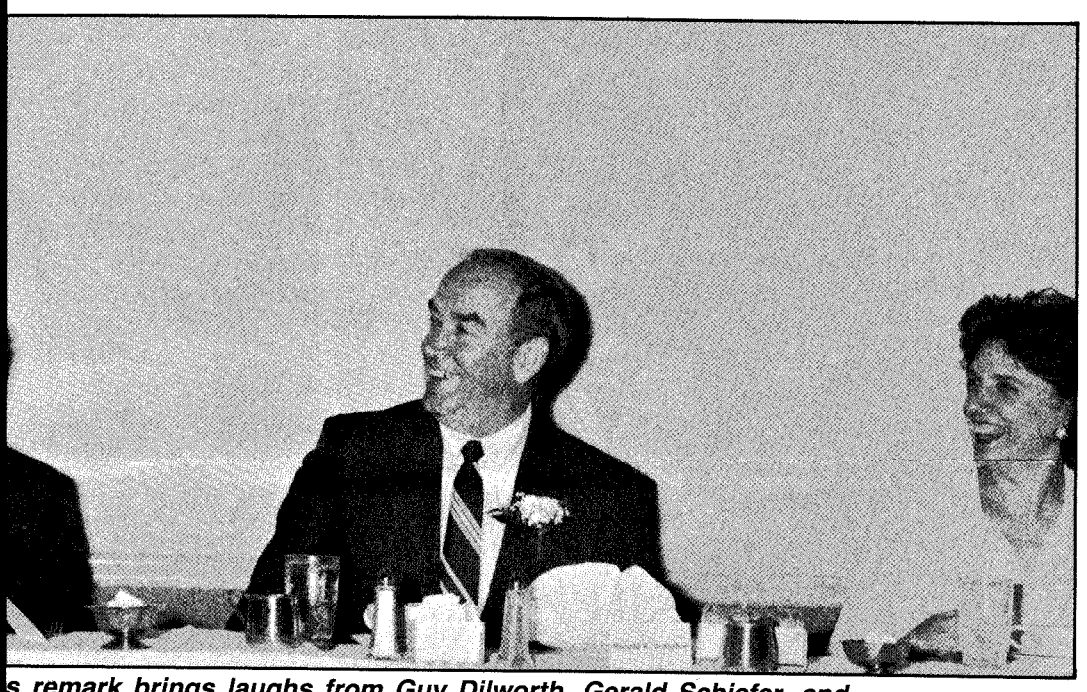
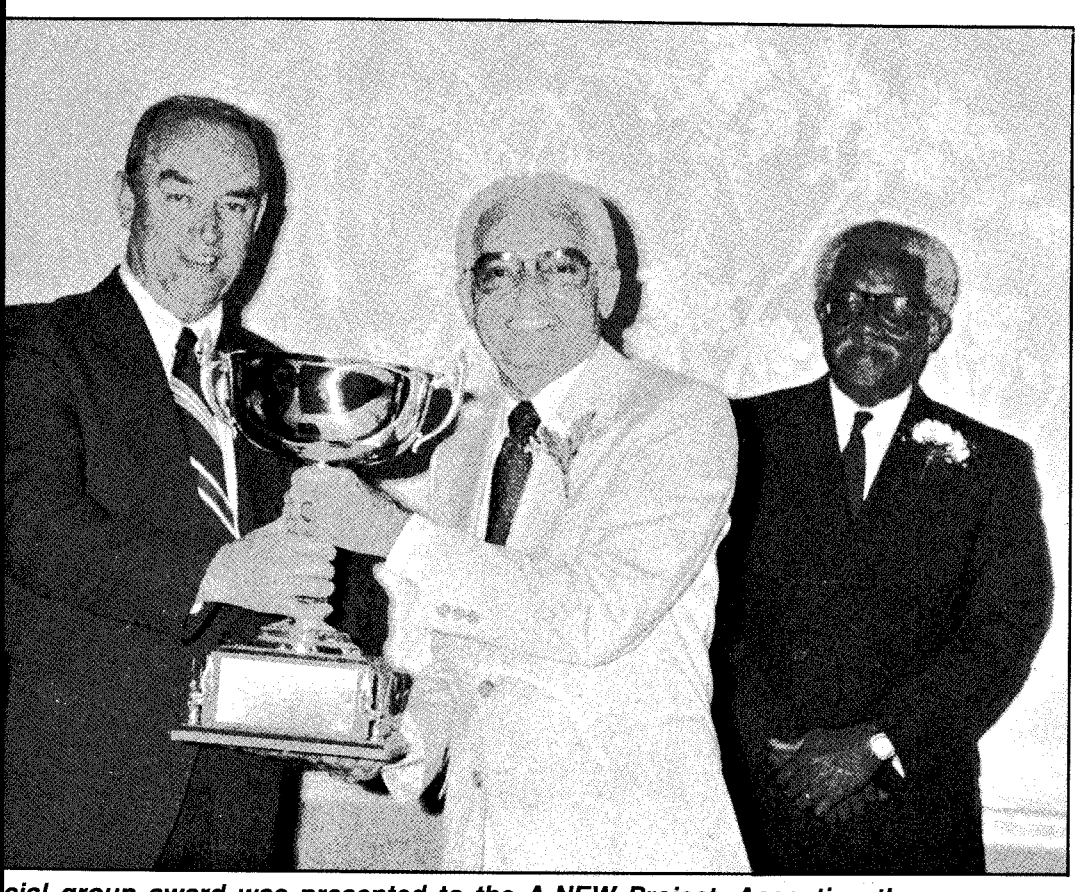


nander, CAPT Curtis J. Winters sits at the head table with Pat Jean Dilworth.



s remark brings laughs from Guy Dilworth, Gerald Schiefer, and ters.



cial group award was presented to the A-NEW Project. Accepting the from Gerald Schiefer, DNL and Guy Dilworth is CAPT Harold Cody, Ret.).

Harold G. Tremblay enjoys a proud moment wearing his Fellow Award medallion.

A lifetime of achievement is marked by the moment for James R. Howard as he exhibits his Fellow Award medallion.

FLEET ASSISTANCE PROGRAM ***participants Stuart Farber (L) and Michael Cannon (R) joins ADM Tobin (COMPATWINGLANT) for a change over. Cannon finished his one-year tour in June and is succeeded by Farber who will serve until June 1991. A comprehensive story of Cannon's assignment will appear in the August issue.***

Defense Secretary still opposes V-22

Although a recent institute for defense analysis (IDA) study indicated the tilt-rotor V-22 "Osprey" was a good buy, Defense Secretary Dick Cheney is standing by his decision not to purchase the new aircraft on the grounds that it is too expensive.

In a Pentagon news briefing on July 3, Assistant Secretary of Defense for Public Affairs Pete Williams asserted that even a V-22 program with a scaled-down production rate, as the study suggests, would still be more expensive. He claimed it would cost $3.7 billion more than what the Secretary of the Navy has recommended be spent on the Marine Corps medium lift aircraft.

"The Secretary has reviewed the draft report and has concluded that the decision that he made last year remains valid," Williams said. "The V-22 is an excellent aircraft, but it is too expensive to buy."

Recent attempts to pare the defense budget have also contributed to the decision not to buy the V-22. "Five years ago, we'd probably go ahead with the V-22 if we had the money," Williams said. "It's a great aircraft, but we're also trying to find every way possible to reduce the defense budget."

The IDA study and report was prepared at the request of the Department of Defense.

Management: promote women to key posts

(Continued from Page 1)

so that you can be the best you can be, then when the opportunity comes, you will be ready."

Tseng's advice to new managers is always try to go the extra distance. Science and engineering are very competitive fields, and you have to do whatever is needed to get the job done. You must do your fair share and people will recognize and appreciate it.

According to Tseng, the technical aspect of being a Branch Head takes a very large portion of time, and based on her experience, you have to know the nitty-gritty details of every project.

Jeanie McCain Photo by M. Vigelis

She has been with the government for more than 12 years. Before that Tseng worked for a contractor on the P-3 project at NADC. She said "I came to the Center at odd hours, working in the lab, dropping sonobuoys and using the simulator. That's how I got to know this place. Then I thought to myself, why work second shift with a contractor, I'll work directly for the government."

Receiving her bachelor's degree in Taiwain, Tseng came to the United States as a graduate student. She received her Masters and Ph.D. from the University of Pennsylvania in systems engineering. Her specialty was in computer science, plus she was trained in physics with a heavy emphasis on math, this she feels gives her a very broad background.

When asked where she sees herself five years in the future, Tseng replied "I'm a very realistic person, I hate to put limits on myself, on the other hand I seldom look two steps ahead," As for five years from now, she says she will go as far as she can, as far as the system allows. She continued, "I don't want to limit myself, but I also don't want to set goals too far ahead or that are unachievable. I believe in taking one step at a time."

Her excitement was evident as she spoke about her new job, she said "I've been told that to date it is the highest position achieved by a woman at NADC. Although this makes me quite nervous, because I want to do a good job and set an example, I am looking forward to the challenge."

Jeanie McCain also believes the Center has acquired a more positive attitude toward advancement of women in management, but feels there is still room for improvement. She stated, "The support by the center Commander and Technical Director for the Federal Woman's Program and the newly formed chapter of Women in Engineering and Science was a good start."

McCain added "I personally feel the Center compares favorably with other places I've worked." She thinks attitudes towards females in engineering and the sciences have slowly advanced over the years. She hopes with the positive attitudes of the Center Commander and Technical Director as impetus, that all Center managers will respond to this forward-looking philosophy and share the same feelings." However, McCain stated "You don't want people to respond because of policy but because they truly believe and understand that women are just as qualified and just as eager to work and get the job done and done well." The Center, she said, is fortunate to have some very astute and assertive females who are willing to do whatever is required to get the Center's programs and projects accomplished.

Her advice for women getting started in management is to let people know you want certain things and are willing to work as hard as you have to. You can't simply put in an eight hour day and assume that will get you everything you want. "One of the things that helped me over the years is being risk oriented," McCain said. "I'll jump out there and take chances. They don't all pan out but you can't be afraid to take calculated risks." If you sit passively people walk past you because they perceive you to be satisfied.

McCain earned her undergraduate degree in engineering math from North Carolina A&T State University. She feels strongly that you have to be willing to go to school. Following her own advice, she went on to get a Masters Degree in administration, and is currently pursuing a Ph.D.

A year and a half after McCain arrived here from the David Taylor Research Center she applied for a branch head position and was selected. Her current staff position, she finds to be both difficult and challenging, but quite rewarding. Her future outlook is to get her Ph.D., take stock, then see what opportunities are available to her.

Who they are; What they do

By JO2 Michael Delledonne

One of the most common reasons for individuals to join the Navy is the thought of travel and that was no exception for Air Traffic Controlman (AC) Second Class Tegwen Shaffer. "I wanted to travel and that's why I joined. There really wasn't any other reason."

The 28-year-old from New Cumberland, W. Va., chose the AC rating because she thought it would be a challenge. "I figured it would be a great experience to be able to control the different aircraft," she said. "Other than being in Cuba I thought I would get to travel being in this rate, but I've only been in for four years so my time will come."

Shaffer, who has been stationed here for nine months, describes the Center as unique. "It's not like any other airfield I've seen," she said. "We have one active runway and no taxi ramps. It's a real challenge getting everything in and out on a single runway."

According to Shaffer, the Navy has its benefits. "It's not like any other job. The days can be challenging and rewarding. Besides keeping a constant surveillance on the air traffic, we also maintain a close watch on the 'deer traffic.' I really have enjoyed my time so far. It's not a bad life to live. I would recommend it to anybody."

Shaffer and her husband are expecting their first child in early December.

AC2 Tegwen Shaffer

PFUN PHYSIOLOGY

By Jolie Bookspan, Ph.D.

Dear Pfun Phys:

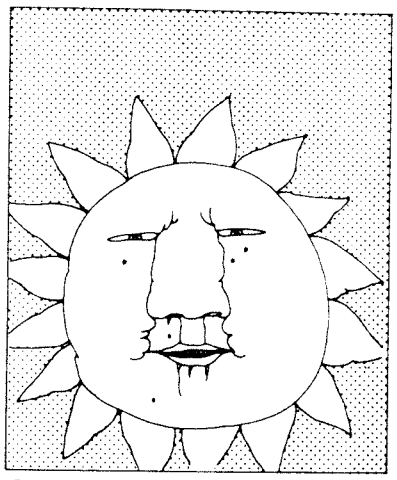
Now that it's hot weather I spend a lot of money on sport electrolyte drinks. Will it help my athletic performance? What am I really getting for my money? What the heck is an electrolyte anyway?

— Signed Thirsty Engineer

Dear Thirsty,

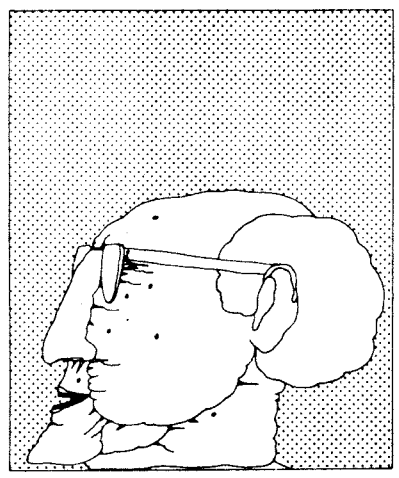
Unless you participate in ultra endurance events or work in the heat all day sweating buckets, what you're getting is marketing hype. Compared to your body fluids your sweat is dilute or ***hypotonic***. When you sweat you lose proportionately more water than sodium or potassium, leaving your blood more concentrated than normal, or ***hypertonic***. That's why you're thirsty. You need water. In athletic events of less than two to three hours duration you don't need to add sodium or potassium because you haven't lost enough to affect your activity. Your next meal will provide all the sodium or potassium you need for your next bout of exercise.

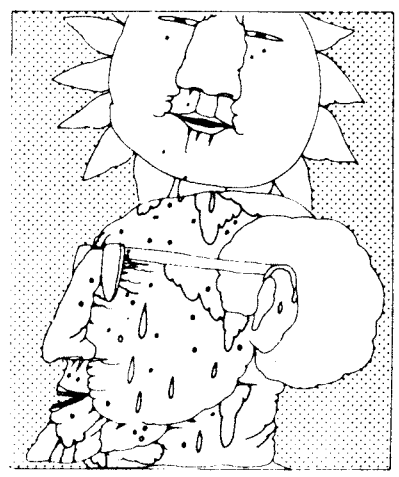
Let's look at the claims. Do these drinks fuel your exercise? Not for the typical exerciser. Three of the main ingredients of sport drinks are sucrose and glucose (both sugars), and salt. Ingesting simple sugars just before or during short duration exercise like a few sets of tennis, basketball, or a 10K run won't help your athletic performance. Your cells use their own glycogen during acute exercise. It's not efficient for your cells to take in sugar from the outside. And it takes time for sugars to be absorbed. Drinking sugar water also contributes to irregular



blood sugar and insulin swings. Regular meals that include complex carbohydrates will give you the nutrients you need to store for short events. Do the drinks "put back in what you need for exercise?" If you're talking about water, yes. Do these drinks "speed fluids into the blood stream?" Sugar delays stomach emptying to the small intestine where sugars and electrolytes can be absorbed. Sugary fluids enter the blood stream more slowly than plain water, which can be any substance that, in water, dissociates into electrically charged particles called ions and so can conduct an electric current. Pure water doesn't conduct electricity, but can with dissolved electrolytes. Sodium and potassium are two of the principle positively charges ions in the body. Magnesium and calcium are two more. Chloride and bicarbonate are two important negatively charged ions. Your body needs proper electrolyte balance for nerve impulse conduction, muscle contraction, and maintenance of cell membrane permeability. To stay healthy, the body maintains its electrolytes within a narrow acceptable range by complex feedback mechanisms. One example is that, when you are inactive, the major avenue of electrolyte loss is in the urine and feces. With exercise, your body reduces this loss to conserve electrolytes for sweat.

Most people have about two million sweat glands, although some people certainly seem to have many more. Your ***apocrine*** sweat glands are emotionally activated. Your ***eccrine*** sweat glands are heat activated. During a cool day without exertion you normally perspire a pint or so. Since it evaporates immediately without your





notice it is called ***insensible perspiration.*** During heavy exercise in the heat you can sweat up to several quarts an hour. What's in sweat? Mostly water. Water evaporation cools you and keeps you from overheating. Some of the characteristic taste of sweat comes from waste products like urea, uric acid, and lactic acid. The better shape you're in, the less you sweat electrolytes. With training your body learns how to conserve them.

Sport drink manufacturers have recently begun changing their formulas. The drinks used to be highly hypertonic - not helpful when you are already hypertonic. Now the mixtures vary. If you absolutely must have your sports drinks, and they're the only way you will drink fluids in the heat, then enjoy yourself, but try diluting the stuff with water. Avoid coffee, tea, or alcohol. They have a diuretic effect. For hot weather exercise body fluids are vital to your cooling mechanism. Drink fluids, especially lots of plain water, to maintain the cooling effect of evaporation to avoid heat injuries.

Next month: Why Diets Make You Fat, or "How The Waist Was Won." Send questions for Pfun Physiology to: Editor, REFLECTOR, Code 041.

Center people donate 238 pints of blood

These 238 people donated blood to the Red Cross, during the Center's June Bloodmobile visit.

Code 02

Susan E. Dougherty, Eleanor M. Hopper, Cynthia Kotary, Linda Lips, Patricia Walters-Caraluzzo.

Code 03

Charles Baniones, Mary Derlin, Kristen Henry, Geraldine Keenan, Michael Markle, Louvenia Mathis, Lois Savage.

Code 04

Jim Barnes, Troy Dennis, James Driscoll, Kathleen Felts, Julie Kinder, Kimberly Kritzberger, Stanley Konopka, Crystal Little, John Pessano, David Sousa, Margaret Vigelis.

Code 05

Alan Kaniss, Walter Long.

Code 06

Ross Hendricks, Frank Luzeuka, Nicole Monastro, Vincent Rice.

Code 08

Jonathan Harding.

Code 09

Robert Janes, James Rechtel, Carolyn Riemer.

Code 10

Douglas Bellis, Linda Bittenbender, Carol Blakey, Leonard Cantor, Albert Cappiella, Steven Catricks, Colleen Cody, Michael Daulerio, Mark Engle, Darren Fields, Ronald Guignard, Laura Huber, Ralph Hungerford, Alan Kwiatkowski, Jackie Legates, David Lewandowski, Robert Litwak, Jeffrey Mansfield, Karen McEntire, John McFadden, Maureen McGuire, Thomas Merkel, Robert Oakley, Richard Parker, Doug Pickett, Carol Pinciotto, Theresa Reis, Frederick Stowell, Brian Truskolaski, Eleanor Turner, Marie Vanfossen, Louis Vollrath, Frank Williams.

Code 20

Ronald Bender, Susan Coar, Joseph Colombo, Debra Erney, Carlos Falcon, Russel Gombos, Craig Jencks, Thomas Michalski, Joseph Palumbo, William Russel, Alvin Spector.

Code 30

Robert Ackerman, Carol Beckett, Richard Brookes, Daniel Carbo, Dina DePersia, Marjorie Douglas, Roland Hall, Carla Mackey, Anthony Mickus, Ellen Moffitt, Nicholas Onorato, David Panetta, Glenn Rhodeside, Debbie Sztubinski, Alan Victor.

Code 40

Edward Beach, Scott Blum, James Buggy, James Hodson, Richard Hogg, Jeanne Koper, Charles Schweizer, Viki Peterson, Janet Suchockas, Robert Jack Abbasi, Margaret Douglas, Keith Faller, Thomas Gilligo, Brian Haugh, Roger Hontz, Christopher Kaszupski, Robert Machler, Lorraine March, Glenn Marshall, Michael McGovern, Margaret McMahon, Edward Mebus, Donald Miller, Donna Morgan, Francis Mulholland, Stephen Patchak, James Pessognelli, Sreekanth Rajan, Leonard Roach, Paul Rush, William Scharpt, David Schuck, John Smiscak, Frank Termine, Anthony Teti, Michael Wagner, Michael Walker, Akiro Yoshida.

Code 60

Robert Adamoyurka, Randall Allen, James Alper, David John Barret, Jocelyn Beattie, Brian Bohmueller, Bradely Cope, Ralph Cantanese, Joseph Cutulo, Jr., Frank Crea, Dannie Darrigo, Robert Digirobmo, Michael Doyle, Charles Dugan, Ronald Emery, Anthony Eng, Marrin Friedman, Estrella Forster, Robert Hay, James Henderson, Gail Hunn, Colleen Hunter, Jonathan Kaufman, Kenneth Kelly, Fred Kuster, Mark Lilly, Paul Luiejewski, Patricia Mancini, Dorothy Mahaffey, Leonid Markushewski, James McPartland, Jerry Millendorf, Charles Miller, Joseph Minnucci, Jeffrey Morrison, Jeffrey Nichols, James Noonan, Joseph Notaro, John Ohlson, Ignacio Marie Perez, Helen Petropoulos, Carl Pierce, Eric Preissner, Suzzane Reeps, Paul Schiller, Timothy Springer, Michael Tobias, Dale Uyeda, Lawrence Waldman, Daniel Wells, George Weller, John Yannaccone.

Code 70

Brendan Berry, Joseph Bunting, Archele Carler, Barbara Cavender, Brian Clapper, Joseph Clay III, Ann Fowler, Raymond Glemser, Nora Hernandez, Edward Huber, Jr., Thonias Knappik, Beverly Lazaras, Paul Meserale, Holly Murnin, Robert Murnin, David Papeck, Carole Preston, Sharon Robinson, Philip Roethen, Candace Sleeman, James Ward, Jr., Johnson Yven.

Code 80

Lorenzo Capili, Stephen Carey, Margaret Callahan, John DeValle, Phyllis Grant, Michael O'Neill, Carl Plantarich, George Rossi, Michael Rogalski, Ervin Rothermel, Andrew Schwartz, Donald Stasse.

Code 83

Robert Anthony, William Brown, Carol Cramer, Roy Deese, Philip Leonard, William McKenna, William Middleton, William Rassier, Mario Tarantino, Robert Urban, David Varner.

Code 84

Lenwood Broomer, Lynne Delprato, Jennifer Durle, Dana Ferebee, John Flowers, Silas Green, Mary Anne Kane, Thomas Karr, John O'Connell, Jr., Lee McBride, Michael Palaia, Robert Reed, William Singleton, William Spratt, Robert Tucker, Jacqueline Underwood, William Myers, Jr.

Code 91

Mark Gindhart, Kevin Haggerty, Alfred Keiss Charles Steinbach, Robert Jacob.

Code 93

Magdalena Berry, Robert Crosson, Larry Sicher.

Others including Contractors

Shelia Elser, Stuart Farber, Charles Halko, Gary Hild, John Lips, Kathleen Lon Ergan, Dennis Ritaldato, Deborah Mathis, Monika Speth, Jack Starrantino, Donna Starner, Terese Wells.

Joseph Colombo, Louis DeMaio, Ray Green, Scott Hawk, John McTague, Robert Melby, Francis Milewski, James Tannenbaum, Frederick Tweed.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Center softball season comes to an end; playoffs begin

By Jack Eyth

The NADC softball season ended right on schedule this year, about a month earlier than last year, thanks to decent weather and double-headers. The final season standings produced a new first place team, the Renegades, and significantly better finishes for the Bearcats, Sand Fleas and the Orange Crush. Although they tied with the Misfits and Eighth Inning all with 12-3 records, the Renegades beat out both for top-seeding as a result of tie-breakers in head-to-head competition. Their most impressive victory was a rare shutout over the Misfits (9-0). Offensive leaders for the Renegades included Scott Holloway (six homeruns) and Bill Brower. The Eighth Inning and Misfits were both consistently impressive all year and will be tough in the playoffs as long as they don't lose any key players to vacations or travel.

The Granfalloon and Bearcats ended the season strong to finish 4th and 5th respectively. Garth Torok has managed to keep the 'Falloon among the league leaders for two years since losing Steve Fleischut and Tom Weiss. The Bearcats, who appear to have matured as a team, cruised to a 10-5 record. After starting the season slowly at 1-3, the Bearcats won 9 of the next 11 games including victories over the Renegades, Misfits and Granfalloon. Tom McGovern and Adrien Hribar (7 homeruns) produced much of the team's offensive fireworks.

The Sand Fleas finished above .500 and had several upset victories in a very satisfying season. Mike Harvan alias "Marv," established himself as a power hitter with five homeruns, 18 RBI's and an .857 slugging percentage. The Sand Fleas finished sixth and occupied the last seeded playoff position.

The Intimidators, Rebels, Orange Crush and Herassers filled out the wildcard playoff positions. The remaining three teams: Phantoms, Life Supporters and Dynatigers missed the playoffs this year, although each team showed improvement from last year. Yes, the Dynatigers finally got a victory in their last game of the season, 13-6 over the Orange Crush.

We don't often thank them, but the new, improved umpire corps played an important part in the success of this year's season. Bob Bello deserves special credit for molding a competent and dependable group of umpires. Thanks Bob, you earned your salary this year!

The final season standings are shown below. My predictions for the Playoffs? Renegades, Eighth Inning, Misfits and Granfalloon in the Final Four; Renegades and Eighth Inning in the Finals. The League Champs? Wait till next month! P.S. - Make plans to attend the 2nd Annual All-Star Extravaganza in early August. Watch for Announcements!

1990 Final Regular Season Standings

Team	Wins	Losses	Runs/Game Scored	Runs/Game Allowed
1. Renegades	12	3	10.6	3.6
2. 8th Inning	12	3	9.8	4.9
3. Misfits	12	3	11.1	4.8
4. Granfalloon	11	4	9.1	3.9
5. Bearcats	10	5	8.8	8.1
6. Sand Fleas	8	7	8.6	7.7
7. Intimidators	7	8	8.4	8.4
8. Rebels	7	8	9.3	8.9
9. Orange Crush	6	10	7.9	11.1
10. Herassers	5	10	6.6	8.4
11. Phantoms	4	11	6.3	10.6
12. Life Supporters	3	12	6.1	12.3
13. Dynatigers	1	14	5.1	14.7

SOME OF THE JACKS AND JILLS ***got together after the Tournament for trophy awards and some tall golf stories.***

NCMA Jack 'N Jill golf tournament attracts big field

By Jack Eyth

After a two year hiatus, the Naval Civilian Manager's Association (NCMA) hosted its Second Golf Tournament at the Horsham Valley Golf Club on 29 June 1990. The format for the tournament was a handicapped Scramble/Jack 'N Jill. The Jack 'N Jill requirement (minimum of one female player per team) had a lot of established men's teams "scrambling" to find female teammates who were interested in joining the tournament. In all, 48 golfers participated including 13 women. The result was a very pleasurable afternoon which featured a luncheon buffet for everyone, and unique pink golf ball trophies for the winners. Par for the course was 66. The scores and awards are:

	TEAM	GROSS	HDCP	NET
1st Place	Pete Brown, Curt Swatchick, Frank Sheedy, Nancy Brown	56	11.0	45.0
2nd Place	Ken Miller, Joan Miller, Rob Muller, Brian Harvey	61	13.4	47.6
3rd Place (Tie)	Jack Eyth, Ranae Contarino Sam Delserro, Lisa Cowles	71	23.0	48.0
3rd Place (Tie)	Rick Yeager, Sue Yeager, Tom Douris, John Douris	66	18.0	48.0
* *	Jim Orr, Janet McGovern Dick Crosbie, George Tigh	66	17.8	48.2
* *	John Bowes, Pat Finnegan Doug Bancroft, Lynda Frattone	66	16.5	49.5
* *	Ed Link, Fred Delarsso Jerry Costanzo, Fran Caffrey	63	13.5	49.5
* *	Bob McAvoy, Hank Lystad Kevin Kennedy, Vida Komer	65	15.4	49.6
* *	John Markow, Bob Tausek Denny Stiles, Marge Tausek	68	17.3	50.7
* *	Kathy Gause, Frank Drummond Mark Drager, John Scott	71	18.0	53.0
* *	Joan Mackensie, Bob Finkelman Stan Yavorowski, Wayne Jerdan	68	14.8	53.2
* *	Patty Aspinall, Mike Harvan Brian Concannon, Kevin Stayer	73	18.5	54.5

Longest Drive (Men) Brian Harvey
Longest Drive (Women) Kathy Gause
Closest-to-the-Pin Rob Muller

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NADC **Reflector**

Volume 35 Number 8 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. August 1990

In This Issue:

NADC wins First Independent Research Award

Photo by J02 Michael A. Delledonne

Dr. Mary Eileen Farrell, Timothy B. Heidiger, Anthony Passamante are honored for earning the Best Navy Independent Research Paper as Guy C. Dilworth, Technical Director, (presenter) looks on.

By Lawrence Lyford

NADC won the award for Best Independent Research Paper for the first time at the Navy's Third Annual Independent Research and Independent Exploratory Development (IR/IED) Symposium, sponsored by the Office of the Chief of Naval Research (OCNR). The Symposium brought together top researchers from all eleven Navy Laboratories and Centers and was held June 19th - 21st at the Johns Hopkins Physics Laboratory, Laurel, Maryland.

The recipients, Anthony Passamante, Timothy Hediger and Dr. Mary Eileen Farrell, all of Code 5032, previously had received the NADC award for best IR paper. This OCNR award is the third consecutive award for IR/IED excellence won by NADC. The previous two were for best IED papers.

NADC also nominated its best IED paper for this symposium. Dr. Chul Oh and Ms. Kamala Mahadevan of Code 4042 presented their paper entitled "Investigation of Wideband Noese-Like Waveforms for AJ/LPI Communications" and participated in the symposium. Varma, Code 01B, chaired the Executive Session on the last day of the symposim which was followed by the display sessions and the award luncheon.

The award ceremony was attended by Genie Mc Burnett, Principal Deputy to the Assistant Secretary of the Navy (Research Development and Aquisition), the keynote speaker; the new OCNR Chief Rear Adm. C. Miller; Gerald R. Schiefer, Director of Navy Labs (SPAWAR); Dr. P. Saalfeld, Director, Office of Naval Research; Dr. P. Selwin, Director of Office of Naval Technology. Invited quests were Guy Dilworth, NADC's Technical Director and Dr. Arno Witt, Director of Science and Technology and Dr. Lloyd Bobb, Dr. William Schmidt and Dr. Thomas Gabrielson from Code 50.

This OCNR award is the third consecutive award for IR/IED excellence won by NADC.

See FIRST Page 5

First seeing-eye dog works at Center

by: Margaret Vigelis

Has anyone noticed the new furry, four legged employee currently at the Center? Her name is Copper and she's seven years old. Copper, a guide dog, belongs to Judith Williams. Williams, a summer program employee, works in the Communication Technology Division (Code 404).

Copper is the first dog ever to work at the Center, and that's what she does—works. Copper guides Williams wherever she goes...shopping, dining, to and from work, and through the corridors of NADC. When Williams and Copper were first learning their way around the Center they were accompanied by a mobility instructor, but now Copper knows her way around. "She's a fast learner," said Williams.

Photo by Margaret Vigelis

Judith Williams (Code 904), scratches Copper, NADC's first four-legged employee.

"People love the dog, they talk to her first," said Williams "but they have to understand that when Copper's in harness we're working and she must not be touched." Most guide dogs are on special diets and only their owners are supposed to feed them, so if you are tempted to offer a tid-bit — don't, and remember always to ask permission before you pet them.

Williams got Copper five years ago when the dog was two years old. This is her second dog. William's first guide dog, Kendra, developed cataracts and had to be retired. Both Willams and Copper went to Leader Dog School in Michigan. The school, sponsored by the Lions Club, breeds their own dogs. First the dogs go to a volunteer 4 H Club family for one and one-half years then they and their trainers go to school for four to six months. The school next tries to match the personality of the dog with its owner. Dog and owner are then required to go to school together. If it is the person's first guide dog the course is for four weeks, for each succeeding dog the course is three weeks.

Williams enjoys her work at NADC and is especially appreciative of flexi-time. "I take the bus to work and a few times it was late but fortunately with flexi-time you can stay later to make up the time." She said she finds everyone at NADC to be helpful and nice. "Don't be afraid to approach me," Williams said " don't be bashful, if you see me please come up and talk to me, I'd like to meet you."

Kallin named Code 30 Deputy

By JO2 Michael Delledonne

Commander Peter Kallin has taken over as Deputy, Warfare Systems Analysis Department, a position previously held by Commander Leo Dacey.

Kallin, 39, has served with various commands mostly in Antisubmarine Warfare (ASW) which suits him just fine. "I've always found ASW to be a fascinating field. Most of my experience comes from the air side of ASW," he said.

Because of the technical nature of ASW, Kallin required a great deal of

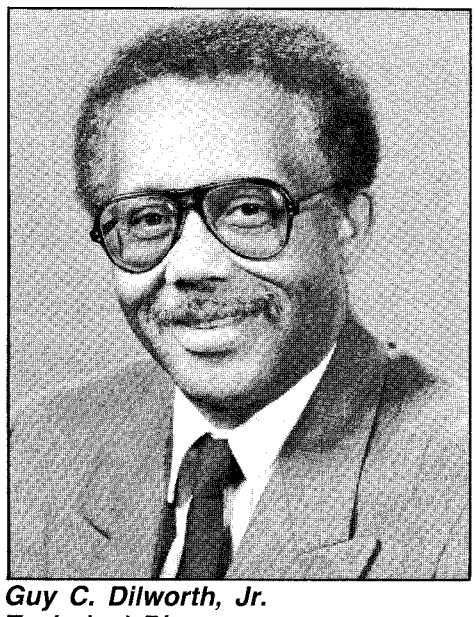
Continued on Page 5

Photo by J02 Michael A. Delledonne

CDR Peter Kallin

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Letter to the Editor

Dear Editor:

Answer to Tax Question

Dear Editors:

In your article in the July 1990 issue of The Reflector on our Warminster earned income tax obligations, you stated "... therefore, our back tax liability is for 15 weeks, 2 days." Perhaps you based this statement on the assumption that we are obligated to pay tax only on income EARNED on or after 1 March 1990. Unfortunately, I believe this is in error.

I remembered a flap in the Intelligencer some time ago about what money was taxable, so I called CENTAX this afternoon. They assured me that the ordinance requires taxes be paid on income RECEIVED on or after 1 March 1990. Stated otherwise, the money earned in the pay period ending 24 Feb 90 is TAXABLE, since it was RECEIVED on 2 Mar 90. The girl at CENTAX sympathized with me regarding fairness, but stated that she was simply quoting the ordinance.

Perhaps some sort of clarification will be necessary, lest someone misinterpret your statement and end up in a penalty situation. Thank you for your attention.

Mike Kreuter

Dear Mike:

You are correct, the taxing agent expects to receive tax due on earned income received after March 1st, not simply earned after this date. Tax codes are written this way to create an initial month or two week pay period of additional tax liability for income earned before tax authority began. It taxes receiving the money not earning it. This increases the tax by 4% this year for those ensnared. Writing the tax code this way also includes such things as phased payments for book royalties earned preceding the tax creation.

Fortunately, Part B of the Quarterly Tax Return NADC employees were to complete by July 31st asked for "actual or estimated tax" for the initial period.

Not knowing community payroll practices, its difficult to determine how many of your neighbors also wind up pay/owing this additional amount.

— *Editor*

Don't judge a story by its headline

Readers who only read the title of the article, "Center Management Philosophy: Promote Women to Key Posts" could come away with a misleading idea about NADC's management philosophy. Without reading it, it might mean "regardless of merit promote women." This would place an unwarranted burden on all the women who have successfully competed on merit for promotions or who expect to. This would discourage others who expect to compete on merit alone in the future. Any such reading does no justice to the article or the individuals cited as "outstanding examples".

Turn off the lights, please!

Does a fluorescent light have to be turned off for a half-hour before the energy saved equals the energy used in initially energizing the light? Many people think so, but this is a misconception. The oscilloscope tracing shows the starting current and the steady state current of a two-tube rapid-start fluorescent luminaire. The total starting current lasts for about one second. The intial in-rush current lasts for only one-half cycle (1/120 second) and has a peak value about five times as large as the steady state peak. This in-rush current does not use a significant amount of energy since it lasts for such a short time. Thus, fluorescent lights only have to be turned off for ONE SECOND in order to save the amount of energy that will be expended when the lights are initially turned on again.

Commander Salutes

Diane M. Heal, (Code 09): For outstanding efforts when assigned to Space and Naval Warfare Systems Command's Historically Black College and Minority Institutions Council.

John D. Scott, and **Diane M. Heal,** (Code 09): For the achievement the Small Business Office has attained by receiving the annual Secretary of the Navy Omnibus Award for Small and Disadvantaged Business Utilization for the second time.

Frederick A. Barker, (Code 30): For your engineering support and professional contributions to the advanced technology applications investigations sponsored by DARPA and this Center.

Robert Finkleman, and **Neil Abramson,** (Code 05): For your assistance in arranging the Navy Laboratory Computing Committee Meeting held at our Center.

Thomas Shopple, (Code 02): For hosting the Navy Laboratory Computing Committee Meeting at our Center.

Fire Chief **Donald Meadows,** (Code 90): To you and your personnel for exemplary efforts shown while extinguishing a fire at Werner Park on 4 July 1990.

Mary Hellings, (Code 80): For your support to the Naval Investigative Service on their recent investigation.

Thomas Castaldi, (Code 50): For your dedicated effort on the ASW Analysis for CAWS-2010.

Katheleen Gause, (Code 03): For your outstanding service as Vice Chairperson of the Philadelphia Area Navy Equal Employment Council and your work ensuring a successful ninth annual manager's EEO training forum.

Lois Savage, (Code 03): For your assistance in ensuring a successful ninth annual Philadelphia Area Navy Equal Employment Opportunity Council Managers EEO Training Forum.

Donald Furmanski, (Code 20): For volunteering numerous hours of personal time to provide training to NASC 0093 on various aspects of the V-22 Programs.

Samuel Shay, (Code 20): For your outstanding support for assisting in activating PACMISRANCFAC's and VC-2's initial A-4/BQM-74 air launch capability.

Donald Gleiter, (Code 20): For hosting and participating in a meeting with members of the Landing Craft, Air Cushion (LCACA) Mission Planning Working Group of the Naval Sea Systems Command.

Dieter Ballman, (Code 02); **Marjarie Tausek,** (Code 03); **LT William Cabe, JO2 Michael Delledonne,** (Code 04); **LT William Headley, LCDR Kevin Brennan,** (Code 10); **Mary Maloney,** (Code 20); **Robert Beesburg,** (Code 30); **LT Gordon Smith,** (Code 50); **CDR David Smith,** (Code 60); **Debra Chaffin,** (Code 70); **Margaret Callahan,** (Code 80); **AMSC Raymond Steele,** (Code 90): For your participation in the Center's annual Navy Relief Drive. As a result of your efforts, a total contribution of more than $7,000 will be donated to the Navy Relief Society.

AW2 Christopher Henderson, AW3 Herbert Raulston, AT1 Granville Pennypacker, AW2 John Hatfield, AW2 Alan Prince, AW2 Albert Labombarbe, AX1 Paul Yuknis, ATCS Charles Bourke, AT2 Joseph Emperly, AW2 Jeff Solomon, AWC Dwight Myllenbeck, Steve Cloak, Jr., Paul McGee, David Dummeldinger, Ken Largent, Les Oliver, John Arcamone, Doug Reichl, Sturt Farber, John Freeman, Linda Ittenbender, David Brown, Frank Garofola, Rich Distefano, Stanley Czarnuszewicz, (Code 10); **Rosemary Farley, James Davis, Beth Goldberg, Ann Cambell, Joan Maloney,** (Code 20); **Lester Smith, Tony Geneva, Julie Drelick, Gary Fisher, George Virgulti, Lissette Fortuno, Jerry Neimark, Kamela Mahadevan, John Zeiger, Bill Klopfer, Joe Mountain, Steven Chung, Ted Morrison, John Fitzpatrick, Charlie Schweizer, James Park,** (Code 40); **David Ngo, John Tepper, Colleen Sweeney, Frank Plonski, Timothy Naugle, Carl Myers, Barry Kirsch, Ronald Kushnier, Margaret Douglas, Jean Drelick,** (Code 50); **Peter Yost, Peter Ayoub, Daniel Wells, Vince Palagrutto, Joseph Armstrong, Gail Hunn, John Koroncai, Joseph Kuklinski, Carl Pierce, Walt Soroka, John Swan, Christopher White, Jocelyn Alston, Paul Donaher, Rodney Pursell, Corinne Docksteder, Carol McIllwain, Douglas Dawson, Barbara Kempf, William Arnold, Michael Poli, John Johns, Juietta Booz, Carmen Mazza, PR3 Mitchel, HM3 Dudley, HM3 Correga, PR2 Warren, HM2 Ryan, HM2 Rhodes, HM2 Minnich, HM2 Holler, HM2 Gonzalez, HM2 Brown, ET1 Hare,**

Continued on Page 8

NADC **Reflector**

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Assistant Editor ..... **Margaret Vigelis**

If the SOC fits

By Robert Janes
General Counsel

One of the key provisions of the Navy's Standards of Conduct (SOC) program is the prohibition against the acceptance of gratuities from defense contractors. This prohibition extends to any defense contractor, not merely those companies with which any employee might have occasion to deal on the job.

There are several exceptions to this prohibition, and one that comes up quite frequently involves travel in connection with a job interview. The Navy SOC instruction provides that it is permissible to accept payments or reimbursements from a potential employer in connection with a job interview, although in order to do so, Navy employees must, before departure, file a written statement with their immediate supervisor and the Office of Counsel setting forth the particulars of the situation and formally disqualifying themselves from participating in any official actions involving the company. In addition, the meals, accommodations, transportation, etc. to be provided cannot be lavish or excessive. They must be similar to what is extended to the recipient because or his or her DoD status.

> As you know in advance what the rules are, it is fairly easy to avoid doing anything improper.

This is one of those areas in the SOC where, so long as you know in advance what the rules are, it is fairly easy to avoid doing anything improper. If you have any questions regarding this, or any other aspect of the SOC, please contact us in the Office of Counsel on Extension 3000.

Making Efficiency Pay Takes Analysis

By Michael Blank, P.E.

We all know that time and money are very important and universal factors when you measure energy efficiency in residential houses as well as in industrial buildings. There are four major methods, for Energy Efficiency Analysis that can be used. Whether to repair an old item (furnace, washer, refrigerator, dishwasher, air conditioner or water heater) or buying a new one, or determining energy savings by insulation of attic, roof and walls or installing a high efficiency lighting system. In any event you can use the following methods:

1. Simple Payback period (SPP)
= Initial cost ($) / Yearly Savings ($)

2. Return on investment (ROI)
= Yearly savings ($) / Initial Cost ($)

3. Benefit To Cost Ratio or Savings to Investment Ratio (SIR)
Benefit (Savings) / Initial Cost ($) =
Lifespan (yrs) X Yearly Savings $/yr / Initial cost ($)

4. Life cycle cost (LCC) =
Purchase Price + Annual Energy Cost x Estimated Lifetime

A Simple Payback Period Analysis and Life Cycle Cost techniques are used primary to gather a basic idea concerning the cost-effectiveness of any appliances or equipment. It also can be used as the decision-making tool for selection of more efficient appliances or equipment. Several factors are involved in the calculation of Life-Cycle Cost requirements.

(a) Purchase Price (or initial cost)

The purchase price of the appliance or equipment including the selling price, sales tax, delivery charges and installation costs.

(b) Annual Energy Cost

The annual energy cost is determined by multiplying the amount of energy use by the cost per energy unit: KWH of electricity, or 1,000 cubic feet (MCF) of gas or gallons of oil.

In our example to calculate Annual Energy Cost you need to calculate the average number of hours the appliance would be used in a year and multiply that figure by the number of Kilowatts it draws. After you have multiply this figure by the rate paid per KWH of electricity and you will find out the yearly cost of using the appliance.

(c) Estimated Lifetime

Estimated Lifetime of appliance or equipment is the average amount of time it will used or expected useful economic life.

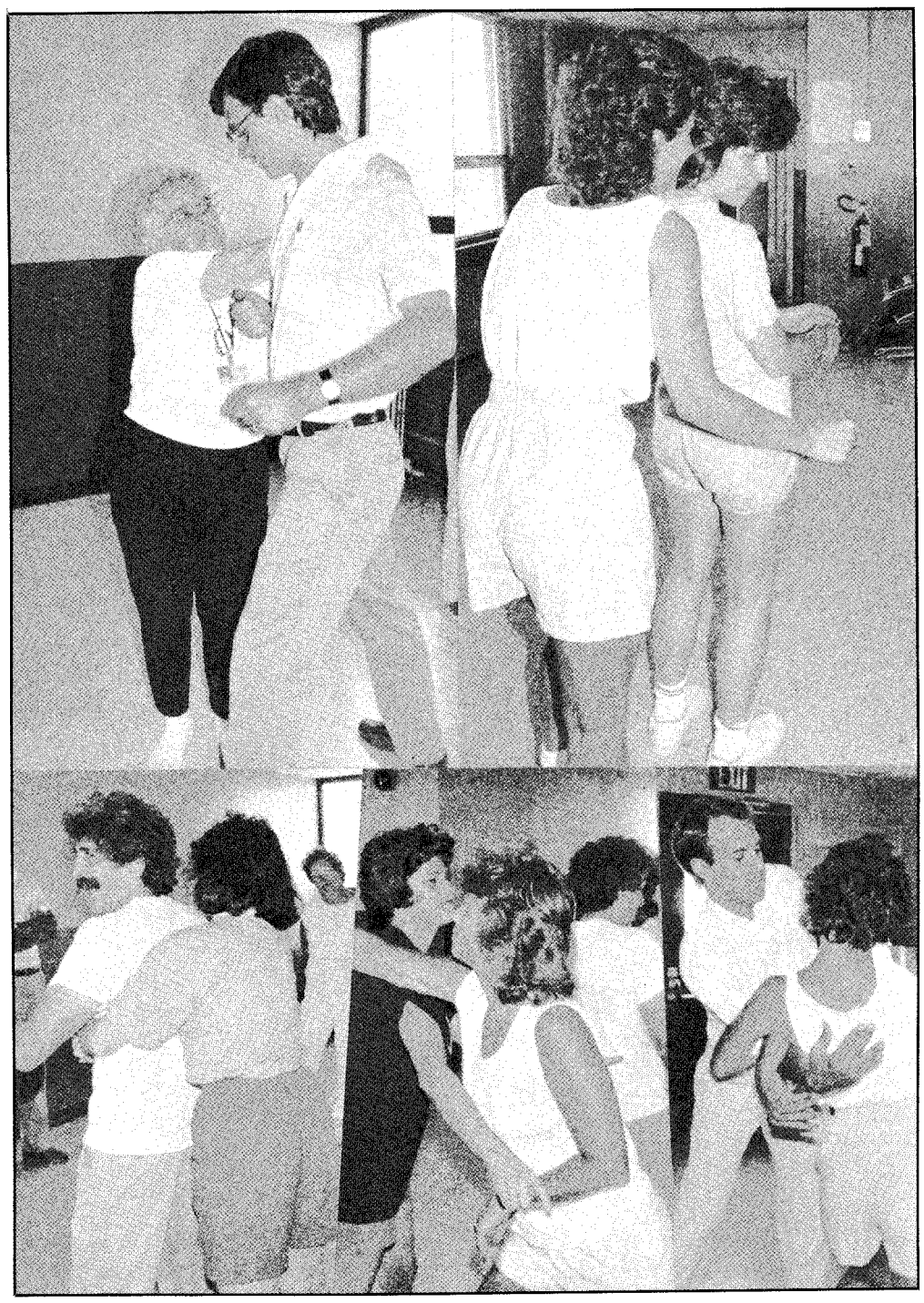
For example, if Model "A" (conventional electrical stove) consumes 2000 KWH per year and Model "B" (conventional electrical stove) consumes 2300 KWH per year and both have an estimated Lifetime of 15 years. If the purchase price of Model "A" is $800 and Model "B" is $700, which of the two models is less expensive over the Life Time Cycle? Life Time Cycle Cost Analysis does provide the answer by using the above formula for calculation of LCC for item "A" and "B":

Life-cycle cost for model "A" =$800+(2000x0.10*x15)=$3800

Life-cycle cost for model "B" =$700+(2300x0.10*x15)=$4150

(*$0.10 represents electric rate per KWH)

As you can see that model "A" was more expensive but it will cost you $350 less then the model "B" over the 15 year estimated life time. Experience has shown that more efficient models may save energy and money for their long operational life.



Women learn important skills.

Photos by Greg Gans

Women Seek Safety

By Margaret Vigelis

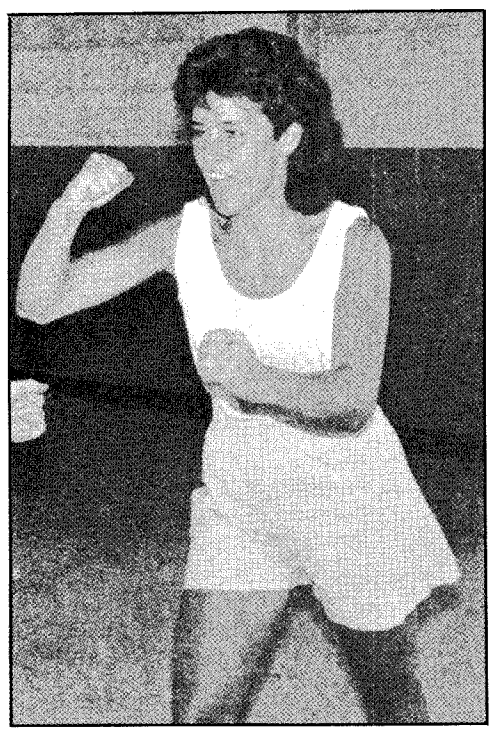
You're alone in a parking lot trying to locate your car or arriving home late in the evening. There's a sound. You look around. Wait! Is that a shadow? Is someone there? These are situations most women encounter at one time or another.

Don't stop going places and doing things. The NADC Karate Club has a solution. A four week course in self-defense for women. The present course has just concluded and a new one is tentatively scheduled to start in September.

"This course gives people ways to get out of potentially threatening situations," said course instructor Phil Rothenberg. In addition to self-defense the course teaches self-confidence building techniques such as yelling, kicking, and punching. "These techniques are designed to make you realize that you are not powerless. You don't have to be a victim—turn the victim into the victor" said Rothenberg.

I thought it was a good course for beginners, people like me, who don't know anything about martial arts," said Joan Reimel. "The instructors were really great. Very patient and supportive. We got all our frustrations out, it was very enjoyable. I recommend it" said Reimel.

Course instructor, Phil Rothenberg, holds a 4th DAN black belt and is a Registered Instructor with the U.S. Karate Association. Associate instructors Len Cantor and Dave Schuck hold 1st DAN black belts. Other Karate Club members also generously donate their time and expertise.



Carrol Peniston learns technique.

The next four week Women's Self-Defense Course will be held at the old crash house, located by gate 30, on Wednesdays at 1130. The cost of the Course is a modest $4.00. This money will be used to purchase new karate equipment.

For more information call Rothenberg at ext. 2625 or Schuck at ext. 2381.

Tower Retains Rating

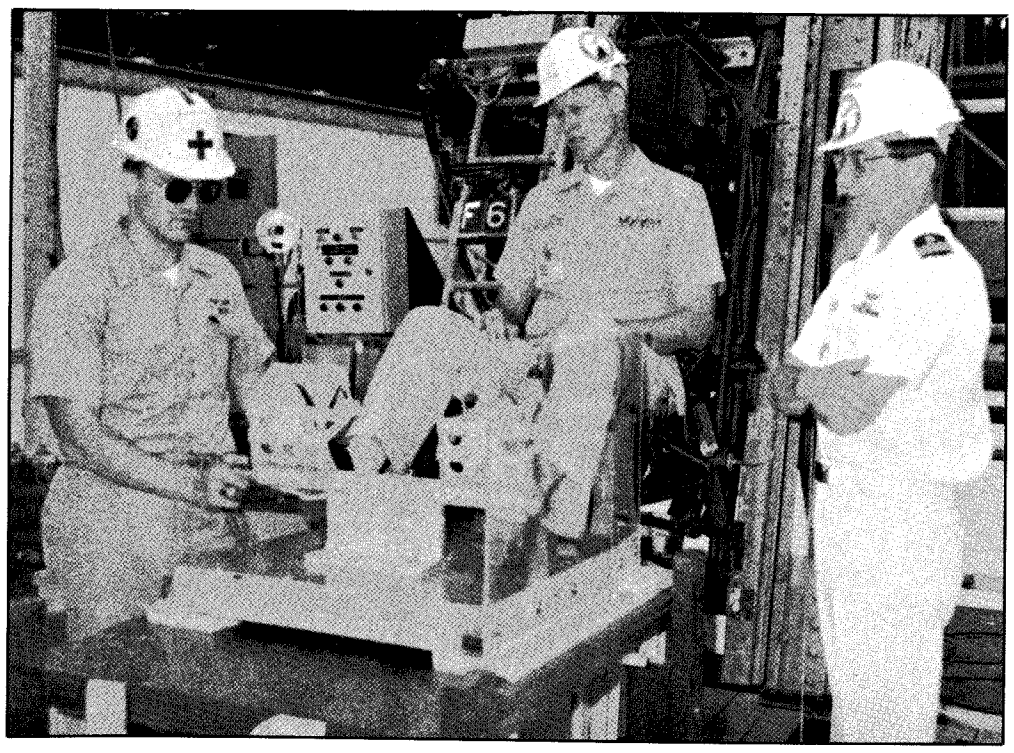


Photo by Drew Schmith

(Dr.) Lt. Richard Hamilton, Capt. Curtis J. Winters, Cmdr. David G. Smith check ejection tower.

By John Harding

Because of the lapse of time since the last human test program (8 years) on the ejection tower and the radical changes within the Department of Defense and the medical community regarding human testing methodology, the Bureau of Medicine (BUMED) rejected the protocol submitted by the Center which called for use of human subjects to conduct qualification tests for the Navy Aircrew Common Ejection Seat (NACES). The Bureau recommended that the Center reevaluate and upgrade capability, operational procedures, safety measures and equipment used in connections with human subject tests on the ejection tower.

The NAVAIRDEVCEN Ejection Tower Facility was obtained by the Aeronautical Medical Equipment Laboratory, BUMED, from the Martin-Baker Aircraft Company, Ltd, in 1946, and erected at the Philadelphia Navy Yard. In August 1976, the facility was relocated to the Naval Air Development Center, Warminster. This facility has been used extensively for human subject and equipment testing by the U.S. Navy, the U.S. Air Force, and NASA.

The first human subject test occurred on 14 August 1946. Since that time, more than 6,600 ejection tests have been conducted, 1,700 of which involved the use of volunteer human subjects.

This unique facility is used to produce dynamic conditions simulating the initial propulsion phase of an ejection from an aircraft. The tower is 150 feet high and is inclined at an angle of 20 degrees from the vertical. It is capable of providing accelerations up to 30 Gz, with onset rates of up to 500 G/sec with a payload of 600 lbs. The principle components of the operating system are the catapult gun; rails; ejectable mass composed of the seat occupant, ejection seat, seat adapter, and cradle; and a "bogie" system and winch which is used to raise and lower the seat. Other ancillary equipment include the data recording instrumentation, high speed photographic equipment, anthropomorphic test manikins, and various electromechanical sensors. Attached to the ejection tower is the Vertical Decelerator component used to replicate impact landing for helicopter and fixed wing aircraft seating development studies.

Both manikins and humans are used during the test and evaluation of these aeronautical equipment. Typical applicants include:

a. Aircraft seat structural integrity to ejection forces.

b. Aircraft restraint systems, including torso, head, leg, and arm restraints.

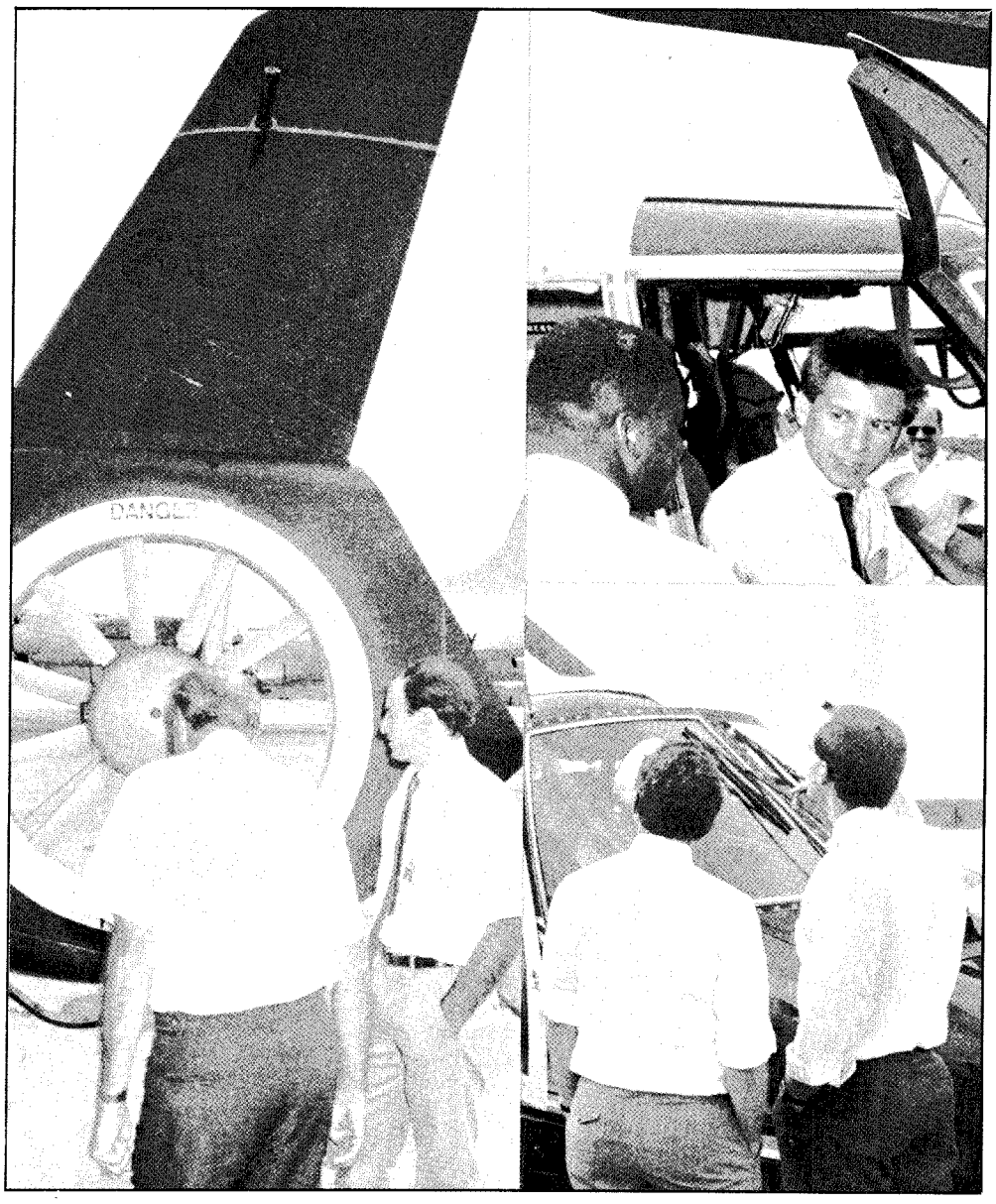
c. Human response to ejection G forces and rates of G onset.

d. Physiological acceptance of cushions, lumbar pads, ballistic inertia reels, seat platform and spinal alignment.

The first human subject test occurred on 14 August 1946. Since that time, more than 6,600 ejection tests have been conducted, 1,700 of which involved the use of volunteer human subjects.

e. Rescue and survival kit evaluation, both structural and physiological.

Following the BUMED requirement for recertification of the facility for human subject testing, the Crew Systems personnel of AVCSTD formed an action team consisting of medical personnel, design engineering personnel, test engineers, ordinance experts, facility support personnel, volunteer military test subjects, photographers, security and safety personnel and representatives from the fire department. The team met regularly to plan and implement actions required for man-rating recertification. Assistance was provided by the Naval Biodynamics Laboratory, New Orleans, LA which recently had gone through the exercise of regaining man-rating certification of its main facilities. After a rigorous period of innovative facility upgrading with safety inputs and subject indoctrination, the protocol was approved and the first live subject test in eight years was conducted on 5 June 1990.



Photos by Drew Schmith

Staff Examines Coast Guard Chopper

By Doug Dawson

On 24 July a Coast Guard HH-65A Helicopter visited NADC and gave Center engineers and scientist an opportunity to examine the helicopter and its equipment. The visit also provided an opportunity for the Coast Guard crew to tour the NADC facilities and talk with Center personnel about future developments in helicopter safety and rescue equipment.

The helicopter crew consisted of Capt. P. Prindle, LTJG R Talley, ASM2 T. Dardis, and AT3 K. Yashin. Capt. Prindle is Commander, Coast Guard Group Cape May NJ. He has command of 9 small boat stations, 3 patrol boats, 3 helicopters, and an Aids To Navigation (ATON) team. His area of responsibility ranges from Barnegat NJ to Indian River DE and includes the Delaware Bay.

The Coast Guard HH-65A "Dolphin" Helicopter is manufactured by Aerospatiale. It has 2 Lycoming/Textron LTS-101-750B-2 engines. The helo has a search speed of 70-100 KTS, a cruising speed of 140 KTS, a search radius of 150 miles, and an endurance of 4.1 hours. The helo will hold a max. gross weight of 8900 lbs. The typical crew consists of 2 pilots and a crewmember (usually EMT and rescue swimmer certified).

Cape May Coast Guard helo's have many missions including; Search and Rescue (SAR), Law Enforcement, Medical Evacuations (MEDEVACS), and Enforcement of Fisheries Regulations. The air station handles between 200 and 300 cases a year. The following cases typify the missions of Cape May Air Station.

Recently, Coast Guard Group Cape May received a distress call from a boat on fire and sinking 20 miles off shore. The boat was under water in less than 2 minutes after the call was made leaving the persons on board drifting with no life jackets. Cape May's helo was quickly dispatched and arrived on scene within 15 minutes. All persons were rescued. Another case involved a 30 year old male who was diving 20 miles off shore when an emergency required him to make a 1100 feet free ascent. The diver developed the bends and an air embolism in the brain. Cape May's helo arrived on scene and hoisted the diver. To prevent further damage to the diver the helo was required to fly under 100 foot altitude for 90 miles to the University of Pennsylvania's decompression chamber. In order to stay at this low altitude the pilot had to fly up the Delaware River and under all the bridges along the way. The diver survived and was told by doctors that had he arrived at the hospital 2 minutes later he would not have made it.

The helicopter visit was arranged by Doug Dawson. Doug is a senior project engineer for the In-Flight Safety Systems Branch, Life Support Engineering Division. He also has 14 years with the Coast Guard Reserve. He spent 11 of those years as a petty officer in charge of SAR/Law Enforcement patrol boats on the Delaware River. In 1987 he was commissioned as an officer and transferred to Coast Guard Group Cape May where he is performing the duties of Operations Duty Officer. His work with the Coast Guard Reserve allows him to obtain "hands on" experience with the life support equipment he helps develop at NADC.

Kallin named Code 30 Deputy

Continued from Page 1

education. He has earned three degrees, the first was a Bachelor of Arts in Biology from Harvard. His second, a Master of Science in Physical Oceanography, and third, a Master of Science in Antisubmarine Warfare Systems Technology, were both earned at the U.S. Naval Post Graduate School located in Monterey, Ca. All were achieved with distinction.

Kallin received his commission through the Naval Reserve Officer Training Corps (NROTC) at Harvard, which put him in some difficult situations. "I went to Harvard in the late '60s and early '70s at the height of the Vietnam War," explained Kallin. "I was an undergraduate when they had all the big strikes on campus. Actually, they disestablished the NROTC program at Harvard and gave us the option of getting out with no obligation or staying in and continuing the military side of our education at the Massachusetts Institute of Technology. A lot of people got out with their free education, but I stayed."

The 18-year Navy veteran went on to explain the pressures of the times. "At the time I did a lot of self-examination on whether I believed in what I was doing or not," he said. "I always felt reasonably patriotic and felt like staying in the program was the right thing to do. We were not well liked and there were some protests, most of which were of a symbolic nature rather than personal."

The first major decision was after his initial four-year obligated service. "I was going to get out and go to graduate school when the Navy told me they would pay to send me. I thought it was a great deal so I took it."

After graduate school, Kallin accepted a bonus program that kept him in the aviation community. "It seem like everytime it was time to get out of the Navy, the Navy turned around and gave me exactly what I wanted," he said.

"I think the biggest surprise after I got my commission was the quality of people I worked with, both officer and enlisted," noted Kallin. "The aviation community seems to get the cream-of-the-crop as far as sailors are concerned."

Kallin described the Navy's challenge and traveling for reasons that have kept him in. "Being on the edge from a technological standpoint is always exciting. The opportunity to travel and do things in the real world, all over the world, continues to fuel my determination."

"While here, I want to contribute to the advances in the ASW field, especially air ASW, since that is where I'm most familiar. I want to make sure the new aircraft and their systems are capable of doing the job," said Kallin.

The commander also is impressed with the Center in his brief time here. "The diversity of the programs is tremendous. There is a broad spectrum of projects that I never had a feel for before and now can see at work. I have met a lot of bright people. It will be a good tour."

Kallin is married to his wife Linda, and they have four children; Barbara, David, Joan, and Robert

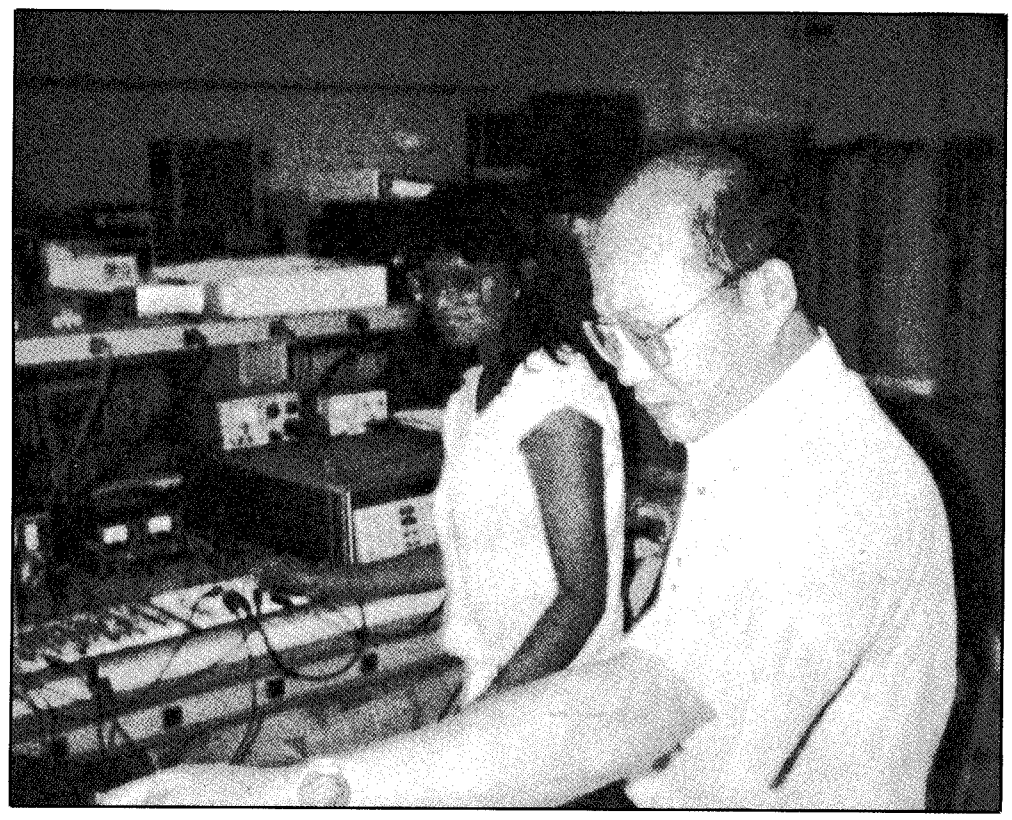


Photo by J02 Michael A. Delledonne

Dr. Chul Oh (foreground) and Kamala Mahadevan review the IED work that made them NADC IED winners.

First IR Award winners

Continued from Page 1

The award winning IR technical paper, "Estimating Chaotic Dimensions for Noisy Signals", reported research conducted to develop signal processing methods and to determine whether chaotic behavior exists in acoustic signals. The investigators utilized the newly developed chaos theory, which explains apparently random behavior of nonlinear physical systems, and applied it to real acoustic signals. "We explored, developed, and applied algorithms to estimate the local linear characteristics of ASW acoustic data reformatted and plotted in phase space," said Passamante, the project's principal investigator.

With the goal of producing new approaches to the efficient processing of acoustic data, they proposed and developed a new measure of chaos called the Local Intrinsic Dimension (LID). The new method is both computationally practical and robust in the presence of interfering noise and has been outlined in two publications in the journal Physical Review A.

Chaotic data which is viewed in the phase space will produce geometric structures called attractors and the LID has been shown to produce the topological dimension of these attractors. "Substantial signal processing gains may be achievable by exploitation of these concepts from nonlinear dynamics," said Dr. Farrell, an associate investigator.

Their LID technique has been used to successfully analyze ASW data for chaotic characteristics; data which previously was not amenable to existing methods of analysis. "Our work provides a new perspective from which to view and analyze ASW data and is a departure from all standard methods of signal characterization and processing," said Mr. Passamante.

The NADC Independent Exploratory Development Program winners represented NADC with their report, "Investigation of Wideband Noise-like Waveforms for Anti-Jam and Low Probability of Intercept Communications (AJ/LPI)."

Anti-Jam and Low Probability of Intercept (AJ/LPI) communication methods reduce the vulnerability of exploitation or communication jamming by an enemy. The project goal was to develop an implementable waveform for Naval communications. The project sought a novel AJ/LPI waveform which emphasized the low probability of intercept over anti-jaming properties.

"We emphasized a Low Probability of Intercept because if an enemy cannot detect the transmission, he can't target its source or jam it." said Oh.

Similar waveforms have been investigated. Results were marginal in performance or impractical to implement for high Low Probability of Intercept.

Dr. Oh devised a way to jitter and shape a waveform. Choosing a proper jitter sequence and waveform-shaper was the key to success. By making the jitter sequence longer and the distribution wider, they showed the new waveform has LPI superiority over a conventional BPSK DSSS (Binary Phased-Shift Key, Direct Sequence Spread Spectrum) waveform and can be enhanced by lengthening the jitter sequence. The new waveform with a long jitter sequence was able to suppress the chip-rate-feature (and other rate features) used by orders of magnitude over a conventional DPSK DSS waveform.

Their mathematical analysis, computer simulation, and hardware demonstration confirmed the desired low probability of intercept characteristics. With their digital hardware they varied the length of the jitter sequence and demonstrated the relationship between feature suppression and the jitter sequence.

"Though I couldn't do spread spectrum signal work as an undergraduate, I plan to use this research as part of my Master's Thesis at Penn State this fall," said Mahadevan. "I value my new experience in detecting spread spectrum signals."

Technical Highlights

ALFS Proposal Review Completed

The Vertical Flight Division has completed a review of the Advanced Low Frequency Sonar (ALFS) proposals. A summary of the review has been provided to the NAVAIRSYSCOM. The NAVAIRSYSCOM is anticipating a contract award for late FY-90 or early FY-91. The Center's ALFS team is now planning the facility requirements for the arrival of a AN/UYS-2 acoustic processor. The AN/UYS-2 processor will be used for development of the ALFS acoustic processing software.

Aircraft Testing Started for TSS System

"In-aircraft" testing of the Tactical Surveillance Sonobuoy (TSS)/P-3 Acoustic Processor Operational Program has started. Ground testing was conducted during the last week of June, and flight tests are scheduled to start in July. The first series of tests is designed to exercise the communications software between the sonobuoy and the aircraft acoustic processor. Flight tests with the full TSS/P-3 Acoustic Processor Operational Program are scheduled for September.

Delivery of Mobile Testbed Laboratory

On June 29, Vehicle Modification Inc. of Petaluma, CA delivered the NADC Mobile Testbed Platform. The Mobile Testbed Platform is a 36 foot customized vehicle intended to support the dynamic testing of various communication and navigation systems being developed by the Communication Navigation and Technology Department. It will replace the existing 25 year old test vehicle which has been used extensively for testing the GPS Phase III User Equipment and various inertial navigation systems. The new vehicle provides 60 cycle and 400 cycle power which is reconnectable to emulate either ship board or aircraft power configurations.

New Tactical Mission Software Released for Baseline P-3C's

The J4.7.W Tactical Mission Software for the baseline P-3C's achieved IOC following NAVAIRSYSCOM approval and release for fleet issue. This software will provide all baseline P-3C aircraft with improvements in mining, ordnance, and data link and eliminate some seldom-used current functions. This issue of the "J" program is the last planned release for the baseline P-3C's.

ASWEL Demonstrates Generic Acoustic Functions

The Anti-Submarine Warfare Engineering Laboratory (ASWEL) has successfully demonstrated generic acoustic display generation, keyset inputs, and tactical symbol generation functions. These capabilities are presently being used to perform Man-Machine Interface (MMI) evaluation by P-3 Update IV operators. The Silicon Graphics computer that is programmed to support the generic acoustic functions also supports the MMI functions for S-3B and vertical flight platform acoustic operators.

Who they are; What they do

By JO2 Michael Delledonne

"I had a friend that talked about the Navy all the time," explained Aviation Antisubmarine Technician (AX) Deena Netherland. "I was in college, but I didn't want to quit. After I graduated, I changed my career plans and decided to go into nursing. My parents got fed up and told me I should join the Navy."

A native of Marshill, Miss., Netherland chose the AX field because it dealt with electronics. "What I do is troubleshoot and repair the avionics systems onboard P-3 aircraft. It's a challenge because I'm just out of "A" school and I still have a lot to learn," she said.

"I wasn't really expecting anything when I enlisted," explained Netherland. "I had never had any contact whatsoever with the military. I didn't know what I was getting involved in."

Netherland's only post-school experience in the Navy has been the Center. "It's hard to be a junior person here," said the 22-year-old. "Everybody expects you to know what you're doing all the time. They forget sometimes that you're just out of school. I'm still learning everyday and I feel like sometimes people forget that."

Photo by J02 Michael A. Delledonne

AXAN Deena Netherland

Eubanks named Sailor of the Quarter

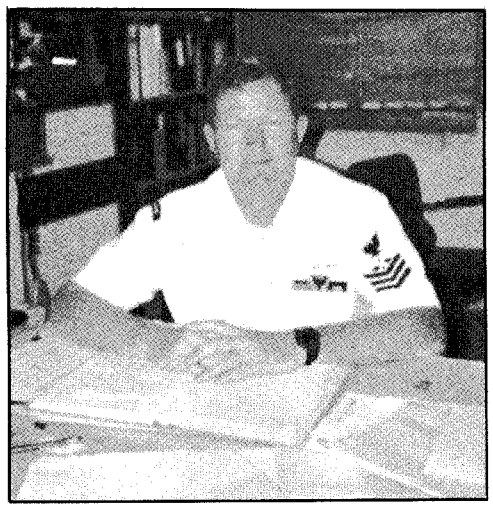


Photo by J02 Michael A. Delledonne

AX1 Stephen Eubanks

By JO2 Michael Delledonne

Aviation Antisubmarine Warfare Technician (AX) First Class Stephen Eubanks was named NADC Sailor of the Quarter (second quarter) 1990.

"I was elated," said Eubanks. "This was the first time I've ever been nominated from any of my commands. I'm really very happy."

Eubanks, leading petty officer of the Avionics Branch, credits his whole division. "This really isn't a reflection on me, but the hard work the branch has put in. This award belongs to everybody in the division. I just happen to be the one being recognized."

A native of Ringling, Okl., the 14-year Navy veteran joined the Navy to experience the world. "Ringling is a farming community of about 500 people," explained Eubanks. "Farming is an arduous life and after 20 years I had my fill. I can still go back and see my friends doing the same things."

"I think the Navy's been great. I've done everything I wanted to do and have been to places to experience how other people live," he said. "It makes me appreciate what I have."

The 35-year-old offered this advice on the Navy. "If you try to be the best you can in every aspect, eventually everything will fall into place. If your doing the job, recognition will follow with time and patience."

Carrega is Bluejacket of the Quarter

By JO2 Michael Delledonne

Surprised and elated was how Hospital Corpsman (HM) Third Class Tim Carrega described his feelings when told of being selected Blue Jacket of the Quarter (second quarter) 1990.

> It's a great honor because there are so many quality people."

"I guess I must have impressed enough people to get nominated," said Carrega. "It means for the last three months I stood out above all the sailors here. It's a great honor because there are so many quality people."

Originally from Hollywood, Fla., Carrega works with the biomedical support team. "I monitor the test subjects to ensure their safety during various projects," he said. "I also serve as a test subject, so not only do I monitor, but I ride the centrifuge and ejection tower."

Calling the Navy a great experience, Carrega has enjoyed his more than five year relationship with the military. "For me, the best part has been the discipline," he said. "When I first enlisted I just wasn't ready to take any responsibility. The Navy has taught me to grow up."

Carrega feels his work on Center has special meaning. "The work we do here is research and development. The equipment we test may someday be in the Fleet. It's nice to know I did something to help ensure the safety of pilots and their crews."

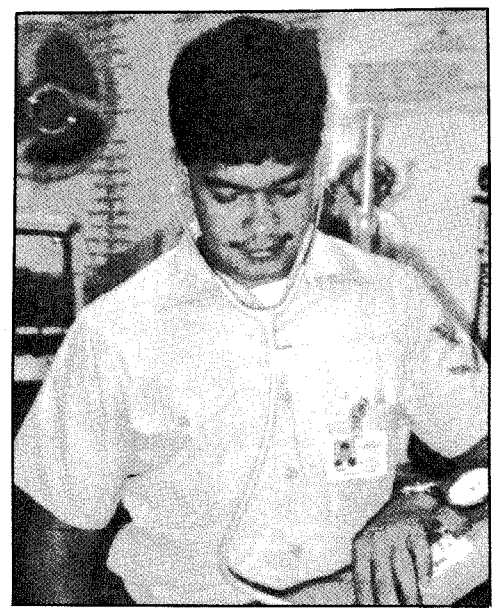


Photo by J02 Michael A. Delledonne

HM3 Tim Carrega

The dispensory update article listed the incorrect telephone number if urgent care is required. It should have read "If Urgent Care is required call X3333 or 441-3333 (Fire Station) for an ambulance," and not X2222.

Reflector gets new editor

Lawrence Lyford has just arrived here as the new Editor of the Reflector. Previously, he served as Public Affairs Specialist with the 79th Army Reserve Command (ARCOM) headquartered at NAS Willow Grove.

He has had public affairs assignments in Panama, Egypt and Honduras. He is a graduate of the Defense Information School, the Defense Equal Opportunity Management Institute, and the Army Command and General Staff College and has two masters degrees.

A Lieutenant Colonel in the Army Reserve, Lyford served an initial tour of active duty in Vietnam and was awarded three Bronze Stars, and Purple Heart. Currently, he is Chief of Information Services, Deputy Chief of Staff for Information Management for the 79th ARCOM.

"In the reserve, I support those preparing human resources for national defense and here my goal is to support those preparing technological resources for national defense. I like the forward looking orientation of both." he said.

Lyford and his wife, Patricia, have two children, Rebecca, 5, and Jon, 3. They recently were recognized with a Great American Family Award. Lt. Gen. Charles D. Franklin, First United States Army Commander, nominated them for their activity as foster parents, for providing shelter for battered women and children, and for support for Orphans in Uganda and helping local churches minister in similar ways.

Lyford's phone number is X-3545.

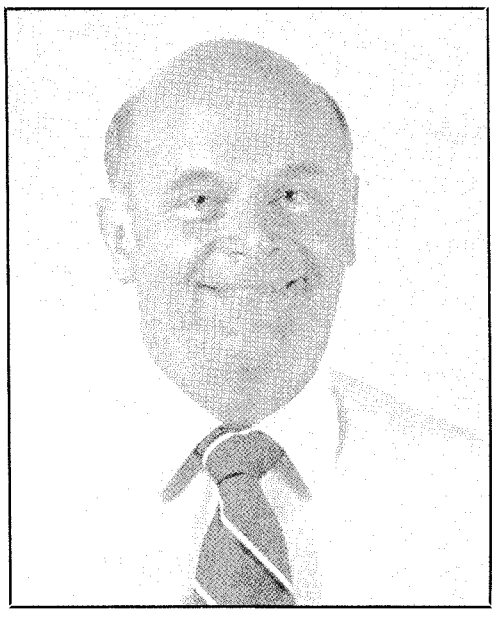


Photo by J02 Michael A. Delledonne

Lawrence Lyford

DISPENSARY UPDATE

This information is provided to familiarize all employees with the NADC Branch Clinic:

Location: Building 16
Hours of Operation: 0800-1600, Monday-Friday
Phone: X3006/3007

STAFF: Senior Medical Officer, V.M. Voge, MC, FS, CDR, USN
Occupational Health Nurse, Maria M. Hare RN, BSN
Leading Petty Officer, T. McCarthy HM1, USN

Services provided by Occupational Health Department:

* Medical Surveillance for exposure to Occupational Hazards
* Job certification/recertification Physicals
* Flight Card Physicals

Civil Service Sick Call — Encourage to use walk-in hours between 0800-0900am, 13-1400pm
Return to work Evaluations — 0800-0900am, 1300-1400pm
Termination Audiograms — Required on last day of employment. Appointment preferred
First Aid for Occupational Injuries — Walk-in 0800-1600pm

IMPORTANT REMINDER TO ALL EMPLOYEES:

a. If **Urgent Care** is required, call X3333 (Fire station) for an ambulance.
b. All persons coming to the dispensary are required to present a dispensary permit when arriving. The only exception is for check-outs and those employees with scheduled appointments. Permits can be obtained through supervisors.
c. In addition to a dispensary permit, employees returning to work after three or more consecutive days of sick leave, must present a note from their physician.
d. Please phone the clinic if unable to keep a scheduled appointment.

* By special appointment *only*.

PHUN PHYSIOLOGY!

Why Diets Make You Fat, Fatter, Fattest . . .

by Jolie Bookspan, Ph.D.

Dear Fun Phys:

I seem to be dieting all the time, but I'm still fat. People say I'm cheating on my diets, but I'm not. What's going on?
- Signed Fat in Code 40

Dear 40,

I believe you. The reason is that most fat people don't eat much more than thin folk. What's usually different is their activity level and what they eat. Picture sedentary Sam and active Al. Both eat a normal 1800 calories a day.

Suppose Al burns those 1800 calories each day by walking on the job and after work. He is in ***energy balance*** and

maintains weight. Sam uses inter-office mail at work and is a couch potato at home. He burns 1500 calories a day. That's only 300 calories a day difference, but watch what happens.

It takes 3500 calories to make a pound of fat. Sam will gain one pound in only eleven 2/3 days, and will keep putting on about two and a half pounds a month. It takes more calories to support more weight so the gain slows, but a year later Sam can be as much as 20 to 30 pounds heavier. Then Sam is in energy balance and stays heavier, although he consumes the same number of calories as thinner Al.

Regulation of metabolism can get complicated, but here's two main reasons why calorie restriction diets can make you fat:

> You can eat more and maintain weight. Or eat normally and lose.

Reason One: You lose more than fat from dieting. You lose bone and muscle. Eating extra protein won't stop it no matter what the T.V. commercials say. Muscle is ***metabolically active***. That means the less muscle you have, the fewer calories you burn awake or asleep.

Reason Two: If you take in less calories than you need every day ***(energy deficit)***, the body learns to need less calories and you go back to energy balance. That's why you plateau on diets.

When you go off your diet, the calories you take in above your new lower requirement are stored as fat. Even if you eat less than before your diet, you gain. Your diet made you lose muscle which burns calories, and gain non-metabolically active fat.

Recent research at Temple University on OptiFast participants confirmed findings of other studies that basal metabolic rate dropped by 15-20%, reducing requirements by 300 calories a day. This 'resetting' effect may not just be temporary. The more drastic the calorie restriction, the lower the 'reset'. And the faster you lost the weight, the faster your body tries to compensate by resetting downward. How to reset upward? Exercise.

Exercise raises your caloric requirements both acutely and in the long run. During exercise and for

several hours afterward you burn calories at an increased rate. With regular exercise your body learns to keep the raised requirement all the time. You can eat more and maintain weight. Or eat normally and lose.

So the key to fat loss is not diet but exercise. If you don't want a formal exercise program, increase activity by walking more often. Trade one or two cookies for a high fiber banana and walk 30 minutes a day. That's a 250-300 calorie deficit a day depending on your size. You'll lose 2-3 pounds a month.

That may not sound like much but it's a clothing size every 3-4 months. Slow weight loss is more likely to stay off, is easier on your heart, and spares bone and muscle. Soon you'll increase your calorie burning muscle enough to increase activity. If you're very heavy or haven't had a recent physical see a doctor before starting an exercise plan. Experts now disagree whether a physical is really necessary, but I'll sleep better if you do.

There are other problems with diets. Diets with insufficient fiber and complex carbohydrates can lower blood sugar, leaving you moody and craving sugary food especially in late afternoon. That's why commercials can sell candy bars by saying "They Satisfy."

But eating simple sugars like candy raises blood sugar suddenly. In response, high insulin levels drop blood sugar lower than before, perpetuating blood sugar swings and food cravings.

So, what you eat is important too. Fiber, formerly called roughage, and complex carbohydrates fuel activity and keep your blood sugar steady. You use more calories to digest them than fatty food or simple sugars. Complex carbohydrates like grains, pastas, potatoes, and corn used to be called starches and were avoided.

Now studies show that eating lots of them instead of fatty and sugary food is the key to healthy eating.

It's true that some people normally are 'set' to a higher calorie burning rate and others are born with fewer fat cells ***(adipocytes)***. You gain adipocytes during the first two years of life, at puberty, and, according to some sources, with each pregnancy.

By eating more calories than you burn you increase their size. Surgery aside, you never lose them. But you can shrink the ones you have by making yourself a better calorie burner with food choices and exercise. And that's how the waist was won.

Send questions for Phun Physiology to: Editor, REFLECTOR, Code 041.

Oops!

Dr. Bookspan's Column to "Thirsty" was hard to follow on one place. Two lines were not printed making two paragraphs run together. The second paragraph answered the question, what is an electrolyte, but the reader had to guess the question because it was not printed. We apologize to the readers and the writer. Here is what it should have been.

Do these (sport electrolyte) drinks "put back in what you need for exercise?" If you're talking about water, yes. Do these drinks "speed fluids into the blood stream?" Sugar delays stomach emptying into the small intestine where sugars and electrolytes can be absorbed. Sugary fluids enter the blood stream more slowly than plain water, which can be *absorbed in the stomach.*

So what is an electrolyte anyway? It's any substance that, in water, dissociates into electrically charged particles called ions and so can conduct electrical current. ....To stay healthy the body maintains its electrolytes within a narrow acceptable range...

Good ideas are worth $$$

Good ideas are worth money -- both in short or long term savings to the Center and in cash awards to the suggestors.

Five such suggestions from across the Center were adopted during July and August 1990.

The suggestors, suggestions and awards are:

Joseph Goffredo (Code 0442) for "Camera outside of new zone area, zones 18 & 19 basement of Building 2," $75.00.

Joseph Corsello (Code 7052) for "Emergency lights needed," $25.00.

David Stasen (Code 811) for "Motion indicator," $50.00.

Jean Bollard (Code 7001) for "Secret document tracking improvement," $25.00.

Library Welcomes Military Personnel

By Jim Kingston

Several NADC sailors have expressed concern with what appeared to be a problem getting a local library card. It seems that one of the more common forms of identification used in applying for a card is a driver's license. Often, military personnel have licenses from their home states rather than Pennsylvania. Showing your Ohio or Georgia or California license alone won't get you a Warminster library card. That, however is not the end of the story.

Speaking with head librarian, Caroline Gassis, we learned that there are many forms of identification that can be used to establish proof of Warminster residency. She cited this litany of identification that can be used: military orders, bank statement, telephone bill, credit card bills, rental agreement, or any formal, business-type correspondence addressed to you at your Warminster address. In addition, your current driver's license or military ID can be used for personal identification.

Gassis, states emphatically that NADC sailors and all military personnel stationed here are most welcome to join and utilize the Warminster library.

Security reminder

FOREIGN CONTACTS

Any form of contact, intentional or otherwise, with any citizen of a Communist controlled country or country currently hostile to the United States, must be reported to the Security Officer, Code 044, on extension 2298.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Misfits crowned league champs 2nd straight year

by Jack Eyth

It's a cliche' used time and time again, but the teams that do well in the playoffs are the ones who can raise their level of play one notch above that of the regular season. The second most frequently used cliche' is the team that wins the big one is usually the one who has been there before. Both cliche's hold true for this year's softball playoffs.

The playoffs began with the Wild Card games. The new improved Orange Crush faced off against the Rebels and narrowly missed making it to the Final 8 for the first time, losing 7-5. The Intimidators were hoping to salvage a disappointing season by beating the Herassers, but wound up dropping an argument-filled contest, 13-7.

Three of the four Quarter-final Series were over in short order. The Renegades demolished the Herassers, 7-2 and 21-0; the 8th Inning handled the Rebels, 5-1 and 14-3; and the Granfalloon silenced the streaking Bearcats, 7-4 and 5-2. In the only quarter-final match-up that lasted all three games, the Misfits snuck past the Cinderella Sand Fleas, 5-10, 12-0, and 6-2.

The Semi-finals turned out to be the most interesting round. The Granfalloon/Renegades series featured an unbelievable 14-inning pitcher's duel between Renegade's free agent Joel Wexler and the Bionic Arm, ageless Steve Torok. The Renegades prevailed in this game 3-2, then won the next game 6-5, thus making it to the Championship Round for the first time in their history. Coach Steve Spadafora was euphoric, having rebuilt the Renegades into league leaders, only three years after trading some of their best players to the Misfits.

The 8th Inning/Misfits series saw the Misfits jump out to a 1-0 lead, 14-7; the 8th Inning bounced back to tie the series 1-1, 11-6; but the Misfits captured the deciding game 16-7. So after finishing the regular season in 3rd place at 12-3, the Misfits now had only the Renegades standing between them and their second straight League Championship.

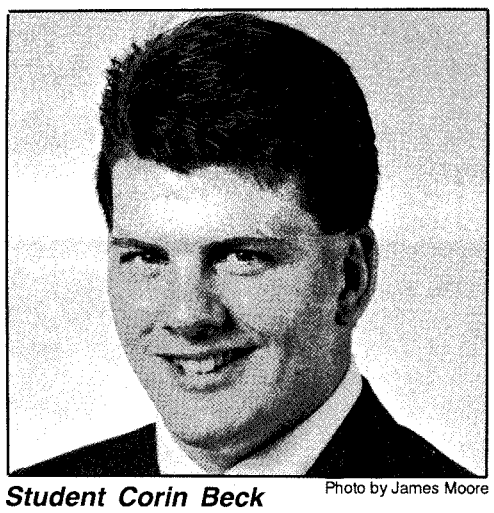
The Championship Round ended quickly. The Renegades lost the first game 6-11 which included a heated altercation over base-running techniques, then faded as the Misfits swept the rest of the series 7-2 and 5-0. Congratulations go to the Misfits who became the only the second team in recent history, besides the Granfalloon, to win back to back championships. Special tribute goes to Jeff Price as the Playoffs' offensive leader, Ed Howard as the defensive leader, and Ed Swiski and Matty Brown as the pitching duo that kept the Misfits in all of their games.

My synopsis on the 1990 Softball Season: The league is streamlining itself into a competitive, fun group of ball teams; it will be harder and harder to dominate with fast pitchers alone; and 1991 should provide a new crop of league leaders. Finally, thanks to Mark Lilly who presided over a well-structured season. By the way, Mark says the Commissioner's Job is open as an Upward Mobility position for next year!

Beck wins CNO Science Awards

Corin Beck (Code 6053) an Aerospace Engineering Cooperative Education Student from The Pennsylvania State University, was awarded the first Chief of Naval Operations Cooperative Education Recognition Award in science and engineering. Robert Goodman, Special Assistant to the Secretary of the Navy, presented the award in a special ceremony held in San Diego, California.

"As a result of Corin's efforts in the analysis of the dynamic characteristics of the A-4D attack aircraft, the Navy has a complete and accurate mathematical model of the A-4D and a model structure that could be used to model any other fixed-wing aircraft," said Carmen Mazza, head, Flight Dynamics Branch.



Student Corin Beck Photo by James Moore

National Night Out held here

On 7 Aug. the U.S. Navy and NADC participated in the National Night Out program. This is a program in which all residents are encouraged to sit outside, with their outside lights on between the hours of 8-10 pm. This is done to discourage criminals from practicing their trade.

Coordinating this program at NADC was Command Investigator Dave Ritho, who described the event as "Spectacular."

The kids in Shenandoah Woods were told there would be a "Suspicious Character" in the area between the hours of 1100-1200. If they saw this "Character" they were asked to report it to Dave Ritho, and they would be eligible for a prize. For the second year in a row, the "Character" was played by ATC Dave Ader, and as expected, he once again did a terrific job. Chief Ader was spotted by 22 kids, all of whom received a prize. All winners received a Certificate of Participation and a NADC patch. In addition, the first 7 callers received prizes which included Youth Center membership cards, a pool pass, a gym bag and hats. The NADC patches were donated by the Public Affairs Office, and the other prizes were donated by JoAnn West, James Whalen, Trea Kelly and Nancy Grayson of military MWR.

At 8 pm "McGruff, The Crime Fighting Dog" arrived at the Youth Center to meet the residents and join with the kids for a photo session. McGruff then went on a tour of Shenandoah Woods in the back of a NADC Security vehicle. He was followed by NADC Fire Dept. vehicles, all with lights flashing and sirens wailing. The tour can only be described as spectacular. Kids on foot and on bikes enthusiastically followed the McGruff entourage through the entire military housing complex. It is estimated that well over 1,000 people took part in this campaign against crime. If you saw a house where no one was outside, all you had to do was look next door, where you would see six to ten people waving at McGruff.

As the Command Investigator, I am very pleased and proud to have been a part of this extremely successful project. But none of this would have been possible without the help of many energetic and unselfish people.

Commander Salutes

continued from page 2

HM1 Dobbins, HMC Clements, HMC Murray, CDR Gary Smith, LCDR David Johanson, (Code 60); **James Toth, Thomas Wagner, Gerry Predhome, Terry Thomas, Glenn Fala, Michael Lizbinski, Kathleen Montrey,** (Code 70); **Jeff Wright, Bill Hunt, Gene Kroll, Frank O'Mara, John Flowers,** (Code 80); **AT3 Adams, AME2 Anderson, AD1 Benning, AZ1 Berry, AME2 Blood, Ax1 Burress, AMS1 Case, AT2 Clay, AD2 Cummings, DPC Darnell, LT Doughty, ABF2 Dussault, AMS2 Eichstaedt, AX1 Eubanks, AD1 Fehr, PR2 Flores, AMS2 Fossecca, AT3 Fronheiser, AMS2 Gentile, ADC Henshaw, AE3 Hilden, AO2 Hines, YN3 Hisert, AO2 Hower, PR2 Johnson, AD3 Leflamme, AZ3 Lefurge, AT2 LeVault, AO1 Maynor, PR2 McClerkin, AT2 McFalls, AO2 Mequet, LT Milazzo, AE2 Moeller, AD3 Murphy, ATCS Newton, AT1 O'Rourke, AT1 Oullette, AD1 Pennington, AMS2 Polk, AX2 Radomski, AZ2 Rice, AMS1 Sablyak, AME1 Sarson, AO1 Schofield, AME3 Sedlock, AE2 Sloat, AOCS Swilley, AX3 Taylor, AT1 Trimble, AD2 Vaught, AEAN Veno, PR2 Waldridge, AMS1 Walls, AE1 Wardach, AEAN Watts, AD2 Williams, AD2 Young, AD2 Zarzaca,** (Code 90); **Pt1. John Sheetz, Pt1. William Battle, Pt1. Stanley Konopka, Pt1. Charles Wilson, Pt1. Victor Olmedo, Pt1. William Labenz, Pt1. David Evancho, Sgt. Joseph Tangye, Chief John Kupetz, Mike Hauges, Shawn West, Carrie Moyer, Glenna Moyer, Mila Whalen, Meg Valintino, Lisa Coupe, Danny Houston, Michelle Stanley, Brian Mattern, Heather O'Rourke, Joanne West, Jim Whalen, Ron Brewer, Mike Patrone, Matt Ardner, John Mulligan, Scott Cummings, Greg Otti, Al Purchase, Tammy Longstreeth, Brooke McAuley, Gary Strauss, Mary Zingarelle, Nichole Zingarelle, Tina James, Carolynn May, Anna Stanley, Nancy Grayson, Trea Kelly, Margaret Vigelis, JO2 Michael Delledonne, Mary Ann Brett, James Kingston,** (Code 04): For your participation and active contribution in the Center's Armed Forces Day Open House. Your cooperation contributed to the success of the occasion.

Security Reminder

Working Papers. Working papers are documents. Working papers containing classified information shall be:

a. Dated when created.

b. Marked with the highest classification of any information contained in the document.

c. Protected following the classification assigned.

d. Destroyed when they have served their purpose.

e. Marked, accounted for, or controlled in the same manner prescribed for a finished document of comparable classification when:

(1) Released by the originator to another command, or transmitted through message center channels within a command.

(2) Placed permanently in a file system.

(3) Retained for more than 90 days from the date of origin.

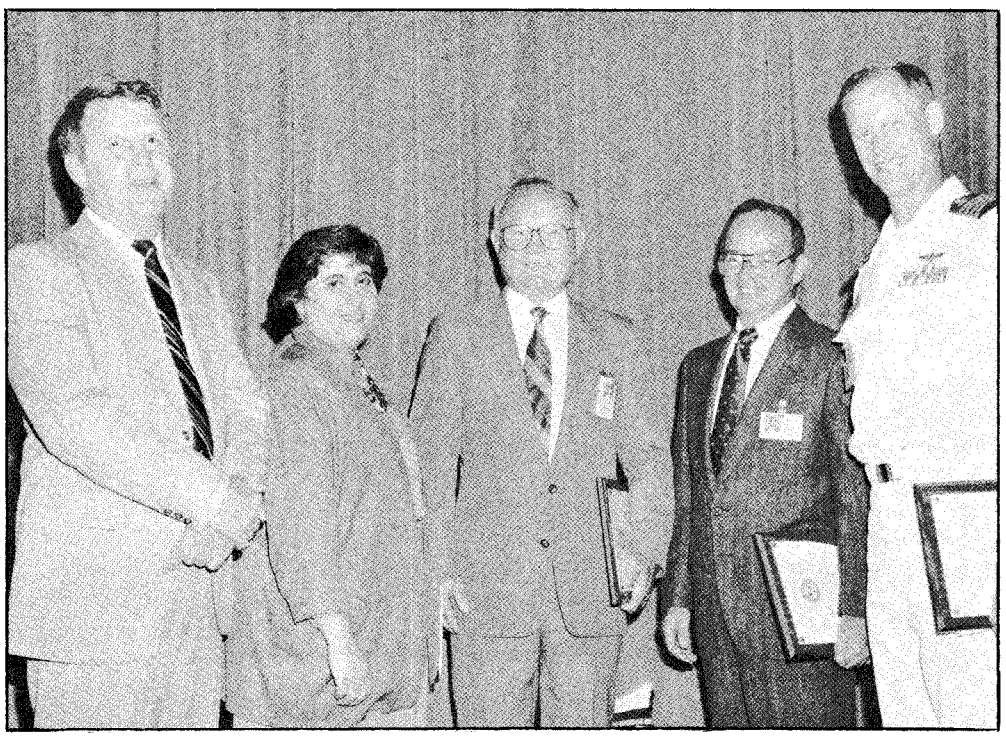
J. BARTON 5021

NADC Reflector

Volume 35 Number 9 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. September 1990

In This Issue:

NADC wins second Navy-wide small business award



Award winners onstage with Under Secretary of the Navy, J. Daniel Howard, Diane M. Heal, assistant deputy for small business; John D. Scott, deputy for small business; Frank J. Drummon, procurement officer, and Capt. Curtis J. Winters, NADC commander.

By Jim Kingston

For the second time, the Naval Air Development Center (NADC) has been presented with the annual Secretary of the Navy Omnibus Award for Small and Disadvantaged Business Utilization. In presenting the award here, Under Secretary of the Navy, J. Daniel Howard said the Small and Disadvantaged Business program works best in a high tech environment and that NADC is the best evidence he has seen that the program can be made to work in the right way. Howard also cited the Center's success as an example not only for the Navy, but for all of the Department of Defense. The Center first won the award in 1988 and is the only Navy activity to be a repeat winner since the award was founded in 1981. The award is presented in recognition of the command's especially noteworthy contribution to the Navy's small and disadvantaged business utilization program.

Although he acknowledged that many individuals deserve credit for the success of NADC's small and disadvantaged business accomplishments, Howard singled out John D. Scott, Deputy for Small Business and his assistant, Diane Heal for special recognition in the achievement of this award. In addition to the award plaque which will remain at the Center for the next year, individual awards were presented to the Center Commander, Captain Curtis J. Winters; Contracts Division Head, Frank J. Drummond; John Scott; and Diane Heal. Scott and Heal also received special act cash awards from Captain Winters.

Agreeing with Howard, Scott credited both acquisition (purchasing and contracting) and project personnel for their major contributions to making the Small and Disadvantaged Business Program a highly successful one. "Without their collective efforts," Scott said, "this program could not have reached this level of success. They earned this distinction for NADC."

This award was given in recognition of the Center's achievements for the fiscal year ended September 30, 1989. For that period, the Center had a total purchasing authority of nearly $203

See SMALL BUSINESS on page 7.

Navy Science Assistance Program works for NADC

by Lawrence L. Lyford

An important function of the center's Fleet Interface Office (Code 30D) is to apply center capabilities to resolve current fleet problems quickly.

Recently, the Naval Special Warfare Command (SPECWAR) conducted unconventional missions. Such SPECWAR missions usually are covert or clandestine. Often Mark 3 patrol boats are used. They must travel through unfamiliar waters, often at night in heavy seas, at high speed to complete their missions.

Navigation hazards and other threat avoidance difficulties pose significant risk. The current, inadequate solution was to strap a night vision goggle equipped sailor to a chair mounted atop the pilot house as a lookout. An improvement was clearly needed immediately.

The Navy Science Assistance Program (NSAP) Science Advisor to Commander, SPECWAR, asked for help. NSAP's mission is to provide a quick response to fleet requests such as this.

The NSAP office, in turn, asked all Navy Labs to propose solutions and NADC's was selected. In August 1989, PROJECT SEYMOUR began.

By November 1989, Mike Mocenter, a Code 5013 Reconnaissance/Surveillance Branch engineer designed, fabricated, delivered and tested a working prototype of a night-capable, stabilized video system and installed it on a Mark 3 patrol boat attached to Special Boat Squadron One.

The letter of appreciation to Mocenter from Commander, Special Squadron One noted Mocenter's "exceptionally responsive effort" which resulted in "very positive results" attest to the success of the effort.

"There are so many people and departments that helped on this project. Without the support of purchasing, receiving, issue control, machine shop, transportation, accounting, shipping and other support people, there would not have been an on-time product. Technical people must rely on support people. We're one team," said Mocneter.

"The success of PROJECT SEYMOUR suggested enhancements to provide unanticipated, increased capability for system use. This is a common consequence of successful NSAP tasks," said Dr. R. A. Bromberger.

PROJECT SEYMOUR illustrates the interaction between the Center, NSAP and the fleet to demonstrate potential solutions to immediate fleet concerns.

See SCIENCE on page 7.

Sailor leads the way

Supports those in Saudi Arabia

by Lawrence L. Lyford

Everyone who ever has been in the military or has had family in the military can appreciate what AW2 Stuart Mattocks, Code 103M has been doing to support the forces in Saudi Arabia.

Steward has been coordinating a letter writing campaign for these men and women.

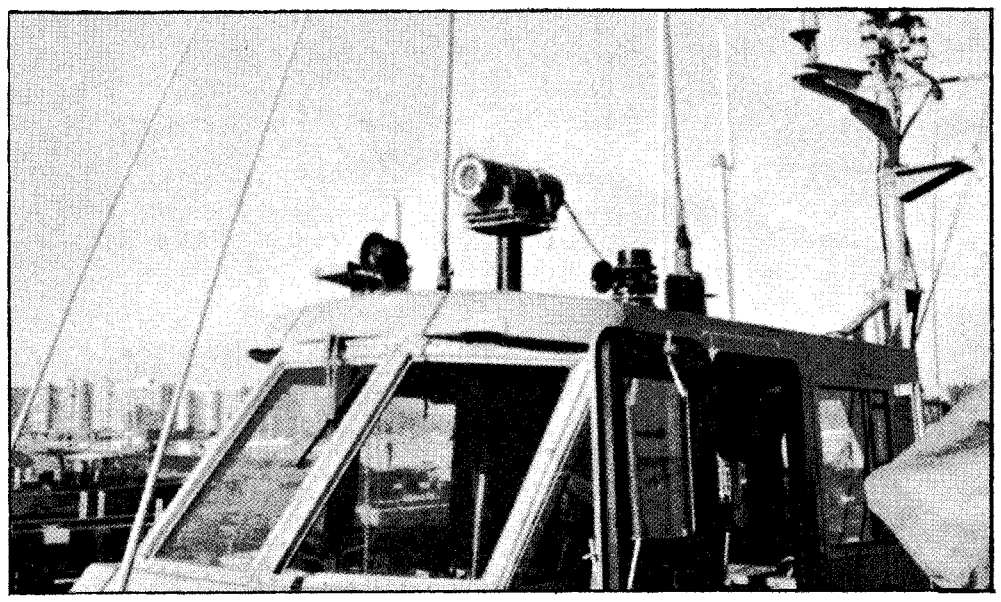
"I just wanted to help. I asked my daughter and son to help. Megan, 10, asked her class at Pfaff Elementary School. Jon's class is going to draw pictures," said Mattocks.

"The principal, Dr. Leslie Fetterman, learned about it and spoke to the Parents' Teachers' Association. They asked me to speak at their meeting last night and they voted to go school wide with the program."

"This shows how the school and community can work together. This whole project is a credit to Mr. Mattocks," said Dr. Fetterman.

Through making repeated calls for Mattocks, we reached John R. Spicer, the Supervisor of Mailing Requirements from the Philadelphia Regional Post Office. We told Mattocks

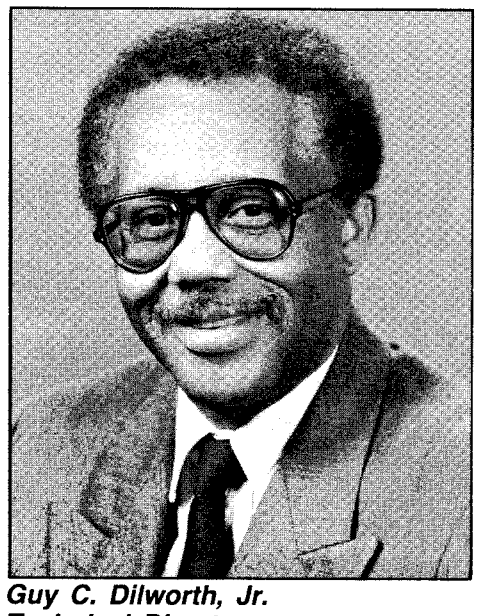
See AW2 Mattocks on page 5.



Night-capable, stabilized video system, PROJECT SEYMOUR's "eye," is installed above the cabin of a Mark 3 patrol boat.

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Letters to the Editor

Editor:

If school children can sort their cafeteria trash for recycling, why can't NADC employees? It grieves my soul to see all the trash we generate here, especially the styrofoam.

One way to cut down on the number of styrofoam cups might be to sell cafeteria hot and cold drinks for a few cents less to anyone who brings his or her own mug.

Karen Nilsen,
Code 2021

The Center's Recycling Program was limited to High Grade (Green Bar) Computer Paper for a number of years. The program was expanded this year to include copier paper. All proceeds from the Recycling Program go to the Military Welfare and Recreation Program.

In October, the program will be expanded to include the Family Housing Area. Recycling in Family Housing will be essentially the same as the recycling programs in the neighboring communities. Housing occupants will be separating newspaper, clear glass containers and aluminum cans from other household trash. Collection and Recycling will be accomplished via the trash removal contract.

Later this year, we will begin recycling the aluminum and clear glass containers that are sold in the Civilian Cafeteria. Public works and the Food Service Board are working together to provide facilities for rinsing and collecting these containers. Public Works is modifying the Center's trash removal contract to include collection and recycling these materials.

The Food Service Board is currently considering replacing the Styrofoam food and beverage containers. Standardized reusable mugs will be available from the cafeteria to replace the foam cups. Alternatives for the Styrofoam food containers are being investigated.

J. V. F. Clay

If the SOC fits

By Robert Janes, General Counsel

In a recent Standards of Conduct (SOC) column, I advised that it was basic Navy policy to encourage outside speaking, lecturing, and writing, and that it was "perfectly appropriate to accept a reasonable payment for a speech or lecture, so long as the effort is undertaken purely in the speaker's private capacity." While it remains Navy policy to encourage these activities, the rules are about to change regarding the acceptance of payments for them.

One provision of the Ethics Reform Act of 1989 (the statute which suspended the Procurement Integrity Law and several other ethics laws) makes it illegal, effective January 1, 1991, for any government employee to accept an honorarium for speaking or writing. The law defines an honorarium as "a payment of money or anything of value for an appearance, speech or article . . ." The law does permit reimbursement for actual and necessary travel expenses incurred by the employee and one relative, but aside from that exception, no payment can be accepted. This prohibition applies to *any* speeches or writings, even if completely unrelated to the government employee's job. A lot of people are up in arms over this and there is a *possibility* that it could be repealed or modified before the upcoming January 1 effective date, although at present that appears unlikely.

Commander Salutes

William T. Walker, (Code 70): For your participation as co-chairman of the Lightning Strike Hazards for Composite Connectors Workshop.

Jude DaShiell, (Code 05): For your support to the Philadelphia Area Navy Equal Employment Opportunity Council on the ninth annual Managers Training Forum.

Susan Smith, (Code 40): For the outstanding assistance you provided as a member of the X-31A team.

John Scott, and **Diane Heal**, (Code 09): For your reception of the "Secretary of the Navy's Small Business Omnibus Award for 1989."

Richard Chern, (Code 032); **Alan Kaniss**, (Code 05): For your assistance in making the recent ninth annual Philadelphia Area Navy Equal Employment Opportunity Council Managers EEO Training Forum a success.

Lois Kieserman, and **Margaret Vigelis**, (Code 04); **Anthony Madera, Dolores Shilkitus, Kathleen Kelly, Mary Reingruber, Jacqueline Burke, Cindy Burke, Terri Grau, Margaret McLaughlin, Lisa Gimbel, and Nina Mulik**, (Code 50): For efforts in coordinating the NSIA Aircraft and Detection/Classification ASW Technical Seminar.

Eugene Byers, (Code 90): For presenting a safety program to the Diamond Rock District Cub Scout Day Camp.

Steve Skilton, (Code 2011): For outstanding performance in assisting the Naval Air Systems Command in the Phoenix Missile Program.

Michael Rankin, Chris Giranda, Peter Raiti, Richard Billmers, Dr. Martin Squicciarini, (Code 5012): For your support and involvement in the Bucks County 1989-90 Science Seminar program.

Joseph Sammer, (Code 5021); **AFCM Valentino**, (Code 098); **ADC Henshaw**, (Code 911): For the fine support you provided to the VP-MAU aircraft.

Paul Rush, (Code 5021): For your contribution to the Aircraft Landing Systems alignment at the Philadelphia Naval Shipyard.

Stephen Campana, (Code 501): For your involvement as Chairman of the 38th National Infrared Information Symposia.

Lawrence Howarth, (Code 5044); **Robert Balonis**, (Code 504); **Brian Gale**, (Code 5043); **Thomas Risbon**, (Code 5043); **Jack Savage**, (Code 5043): For your efforts on behalf of CTF Six Seven in the Mediterranean VLF initiative exercises.

John Andujar, and **David Davis**, (Code 5024): For the fine support provided to the Joint AMC, TRADOC, LABCOM, CECOM, and FORSCOM Multi-Mission Area Sensor (MMAS) Field Experiment at Fort Bliss, TX.

Norma Mittauer, (Code 0441): For your efforts in coordinating the security functions for the Armed Forces Communications and Electronics association which resulted in its being a huge success.

Stanley Brown, (Code 5021): For your excellent briefing presented on the V-22 Antennas.

Carl Schmiedekamp, (Code 7033); **Frank Prindle**, (Code 7032): For your support to the Operating Systems Standards Working Group of the Next Generation Computer Resource program.

Edward Linke, (Code 835); **Edwin Sinnamon**, (Code 046); **Gerald Moritz**, (Navy Exchange): For exceptional assistance and service you provided to ensure the success of the recent "Fitness-Free-For-All."

Promotions

Carol Vanwyk, Eleanor M. Hopper, Margaret N. Kosanchuk, George W. Banks, Catherine A. Clark, Michael M. Kijesky, Mary J. Maloney, Jeanne S. Kita, Maureen L. Talley, James R. Buggy, Tomasa Castro, Judith A. DeFranco, Robert E. Mack, Kamala Hahadeyah, Victor M. Colon, Hasan Elmusa, Michael Falco, Timothy L. Naugle, Susan K. Porretta, Keith S. Rilkowski, Peter Ayoub, Michael R. Bosak, Nannette M. Kardaszeski, Joseph M. Minnucci, George K. Weller III, James M. Wright, Oliver W. Byrd, Kenneth R. Danser Sr., Colleen P. Perkins, Gladys Soto, Neil H. Wolfe, Barbara A. McGrath, and Susan E. Wolfe.

NADC Reflector
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Cannon returns from Fleet Assistant assignment

Michael P. Cannon

By Jim Kingston

"Although I, personally, have a limited shelf life at the headquarters of Commander, Patrol Wings, Atlantic (CPWL) because of the three-year turnover of military personnel, the long-term effect of the Fleet Assistant Program (FAP) has significant value at CPWL," observed Michael P. Cannon. As NADC's first field representative under the Fleet Assistant Program, Cannon has just returned from serving as full-time liaison between the Center and the Fleet. The one-year assignment took him to the Naval Air Station, Brunswick, Maine, where he served with CPWL.

Cannon interacted with NADC technical representatives to get Center products to CPWL personnel, ASWOC facilities, and squadron activities. In addition, he established points of contact to expedite and facilitate on-going programs. This, in turn provided NADC with access to key P-3 personnel involved in specific Center programs.

According to Cannon, among the reasons he took the assignment was career enhancement both as a civilian engineer and a Naval Reserve officer. Since he had worked in Aviation Life Support Systems (ALSS) in Code 603 prior to the FAP assignment, he was very familiar with the P-3 community. This assignment would serve to add another dimension to his P-3 knowledge in that it would be in the context of the operational Navy.

One way Cannon got a better understanding of the active P-3 community was being invited to participate in every P-3 training exercise. His supervisor believed it would be good for him to undergo the same training as the military personnel because it would give him an appreciation of the systems designed by his NADC peers.

He found working in an all-military environment quite different from NADC. By comparison, there was more formality and military courtesy. Both military and civilian personnel were addressed by rank or title rather than the first-name informality prevalent here at the Center.

Although he thoroughly enjoyed the FAP assignment, Cannon said he was happy to be back on Center. Now working in Code 30D — the Fleet Assistance Program office — he said, "I want to contribute my efforts to expanding the Fleet Assistance Program and helping future candidates in their new assignments." Cannon will have the opportunity to do just that as he advises his replacement, Stuart Farber.

Mickey Dipasquo receives multiple honors

by Margaret Vigelis

Micaela (Mickey) DiPasquo, an electronics engineer, in the Antisubmarine Systems Department recently received the Meritorious Civilian Service Award and a Special Act Award for her work at NAVAIR. She had been detailed to the Airborne Strategic Communications Program Office as the TACAMO Deputy Program Manager for fifteen months.

DiPasquo was responsible for the E-6A aircraft development and acquisition program, and was the main point-of-contact for all dealings with Boeing on this more than two billion dollar program.

"I often briefed Congress and H. Lawrence Garrett (currently Secretary of the Navy)," DiPasquo said. Garrett commended her for the wisdom, clarity and insight of her recommendations which enabled the Navy to save more than two million dollars on the contractor's asking price for the aircraft.

"I was also involved with many other aspects of the program besides engineering," said DiPasquo. "I set up temporary headquarters for two fleet air reconnaissance squadrons, planned a new base for permanent headquarters which included such things as new airstrips and housing facilities. In addition, I planned and fully coordinated all technical and operational evaluations (TECHAVAL and OPEVAL)."

DiPasquo's position enabled her to work with the fleet quite a bit. This involved her assessing aircraft transition requirements, determining and getting proper manning levels, training, technical manuals and whatever else needed to meet operational requirements and required force levels. "It was completely different from what I do at NADC — I totally ran the program — it was the most responsible position I've ever had. It was truly an exhilarating and rewarding experience" said DiPasquo.

Mickey DiPasquo, Code 103, received a Special Act Award from Capt. Ed. Hampshire of NAVAIR for her work as TACAMO Deputy Program Manager for the E-6A.

Capt. Curtis J. Winters, Center Commander, presents the Navy's Meritorious Civilian Service Award to Mickey Di Pasquo, Code 103, for her outstanding and dedicated service to the Naval Air Systems Command.

Hatboro exercises emergency management plan with NADC

By Jim Kingston

A hazardous material (hazmat) training exercise by the Naval Air Development Center (NADC) Fire Department was the setting for the Borough of Hatboro to exercise its newly established Emergency Management Agency and Plan.

Shortly after 7 p.m., 6 September, the first alert call was received at Borough Hall by Borough Manager amd Emergency Management Coordinator, Albert L. Hermann, announcing a fire and burn victims at the foot bridge behind Crooked Billet School. Moments later, a second call came in informing Hermann that the cause of the fire and casualties was a spill of several hazardous materials, including Toluene #1295, Bleach Powder #1035, and ammonia solvent. Both calls came from W. Robert Stauch, Borough Fire Chief and Deputy Emergency Management Coordinator. Stauch next called the NADC Fire Department requesting the services of its hazmat response team and equipment as well as neighboring fire companies.

Within minutes, NADC's and other fire companies from surrounding areas that comprise a mutual aid network began arriving at the scene. Arrival of fire equipment at Crooked Billet School caught those attending a meeting of the Home and School Association unaware. Many parents and teachers, as well as neighborhood residents, came out to see the cause of the commotion and were relieved to learn it was only an exercise.

By the time the hazmat exercise ended — well past 10 p.m. — a total of five fire companies — Hatboro, Warminster, NADC, Enterprise, Hartsville, plus the Second Alarmers had participated, Boy Scout Troop #103 also took part acting as casualties.

Both Hermann and Stauch expressed appreciation to NADC and their satisfaction with this first test of the borough's Emergency Management team. They are planning a major test in the near future.

Technical Highlights

RFP Released for S-3B Co-Processor Memory Unit (CPMU)

The VS Branch has completed a Systems Design Review on the CPMU to replace the drum in the S-3B avionics. This development is a joint venture with the Canadian Forces because of the similarity between the S-3B and the CP-140 systems. The CPMU will provide the S-3B system with increased memory capacity, and increased reliability. The Center's procurement of a CPMU also includes a co-processor for the AYK-10 in the S-3B. This additional capability will permit the AYK-10 to handle parallel processing tasks and is expected to increase the overall processing speed and system response times to the operators. An RFP has been released to procure an Advanced Development Model of the CPMU.

FI B4.2.2 Distributed for S-3B

The VS Branch has completed and distributed the software and documentation for Fleet Issue B4.2.2. This version of S-3B Tactical Mission Software (TMS) contains improvements in ESM, acoustics and radar, and provides an enhanced STP for preflight testing of the S-3B avionics. The upgrades to the TMS are in the areas of display management and accuracy improvements. The B4.2.2 software has been distributed to six CV-ASWM's and five VS squadrons for introductory training.

Mission Data Playback System (MDPS) Software Provided to DRS

The Vertical Flight Division has provided the Diagnostic Retrieval System Corporation (DRS) with software for the MDPS for the SH-60. The NAVAIRDEVCEN software was used successfully during the TECHEVAL and FOT&E for the SH-60F at the NAVAIRTESTCEN. DRS has been awarded the contract for the preproduction development of the MDPS and can reduce their development schedule as a result of receiving the Navy software and data package.

SH-60B ISAR Software Development Completed

The Vertical Flight LAMPS MK-III Branch has completed software development on the system engineering and software implementation for an ISAR demonstration at NAVOCEANSYSCEN. The engineering effort to modify the FI-18 software to be compatible with the ISAR provides the SH-60B test-bed with an integrated standoff radar imaging capability. The ISAR hardware is expected to be available for integration from the Texas Instruments Corporation in early FY-91.

TECHEVAL Completed For P-3C I4.7 Tactical Mission Software

TECHEVAL has been completed on the I4.7 Tactical Mission Software (TMS). The NAVAIRTESTCEN has recommended that the I4.7 TMS be introduced into OPEVAL at AIRTEVRON I (VX-1). I4.7 provides the P-3C Update II squadrons with improved SRS, greater usage of new buoy types, data link, and enhanced display capabilities. The ISAR modified Update II aircraft will now have the capability to use the ISAR Radar on-line. Harpoon targeting aids have been removed. I4.7 also enhances the P-3C Update II acoustic processing capabilities and has been designed to greatly improve the stability and reliability of the CP-901 tactical computer system. Fleet introduction is scheduled for January 1991.

Ring Laser Gyros

Under the technical direction of the Naval Air Development Center, Litton Industries is developing a surface ship inertial navigation system which contains their 28-CM ring laser gyros. This system utilizes unique platform rotation techniques to cancel case-fixed gyro drift rates and simultaneously accomplish gyro rate biasing. Laboratory demonstration testing has been accomplished in preparation for NAVAIRDEVCEN's installation aboard the USNS VANGUARD (T-AG-194). NAVAIRDEVCEN will perform shipboard testing for a three-month period beginning in mid-July. During this time the system's at-sea capabilities including latitude sensitivity will be investigated.

TACAMO

Code 4041 received Interim Approval to Operate the TACAMO Laboratory Facility for processing classified data. The laboratory is being used for TACAMO Upgrade software development, subsystem verification and system integration. The approval was granted by the Associate Technical Director based upon a review of the security operating procedures being implemented.

Sonar Array Survey System

Admiral J. E. Koehr, the head of the Naval Oceanography Command has issued a letter stating that the software developed by the Naval Air Development Center for the Sonar Array Survey System (SASS Phase IV), should be planned for use in other Naval Oceanographic Office's multibeam bathymetric systems. He stated that the use of common software offers the potential to produce initial and life cycle cost savings as well as increased data processing efficiency ashore and afloat.

ASW Communications

The Digital ASW Sonobuoy receiver brassboard developed under the Communications Technology Block is now under evaluation in the Comm. Technology Division. The receiver uses digital signal processing techniques to separate the sonobuoy RF carriers, and to demodulate the Frequency Modulated acoustic waveforms. The key feature of this receiver is the processing architecture which efficiently separates the RF channels. The unit will be used to establish specifications for future EDM sonobuoy receivers, thus reducing the risk to the FSD program. Through implementation in VHSIC technology, a full band digital ASW receiver can be accommodated in smaller size package than conventional analog receivers using this technology.

Tactical Decision Aide

The Tactical Decision Aid (TDA) Project Office (Code 202P) completed its most recent update of the Integrated Tactical Decision Aid (ITDA) software. This 2.1 version is the final release for

(Continued on page 7.)

Federal Womens' Program guest speaker, Prof. Norman H. Cohen, receives a certificate of appreciation and NADC coffee mug from Dolores M. Smith, Chairperson of the FWP Mentoring Committee. Also participating were Elaine Picard, Marge Russo, Hazel Andrews, Robin Halperin, and Dolores Ferguson.

Liaison office relocated

By Jim Kingston

NADC's Washington liaison office in Crystal Plaza #5 has been moved from suite 210 to suite 701. To get to our suite, enter through 700 which is the office of STI, the company which is leasing us the facility and supplying the administrative services. It is expected that eventually, we will have direct access to 701.

Our office has been cleared for secret conference use and has secret storage capability. We are setting up the computer system to handle E-mail and getting clearance for classified word processing support. For the present, the office can support unclassified word processing, copying services, viewgraph preparation, fax, courier services and overnight mail.

Arrangements can also be made to reserve a conference room for use up to the secret level. Call (703) 920-9322.

Should you encounter any problems with the service, please contact Stu Simon at extension 1099.

How do you spell librarian

We should have spelled it right! In the August issue of the Reflector, in our story on the Warminster Library, we identified the head librarian as Caroline Gassis. The proper spelling is Gallis.

HELP SOMEBODY THROUGH YOUR CFC
SUPPORT THE COMBINED FEDERAL CAMPAIGN

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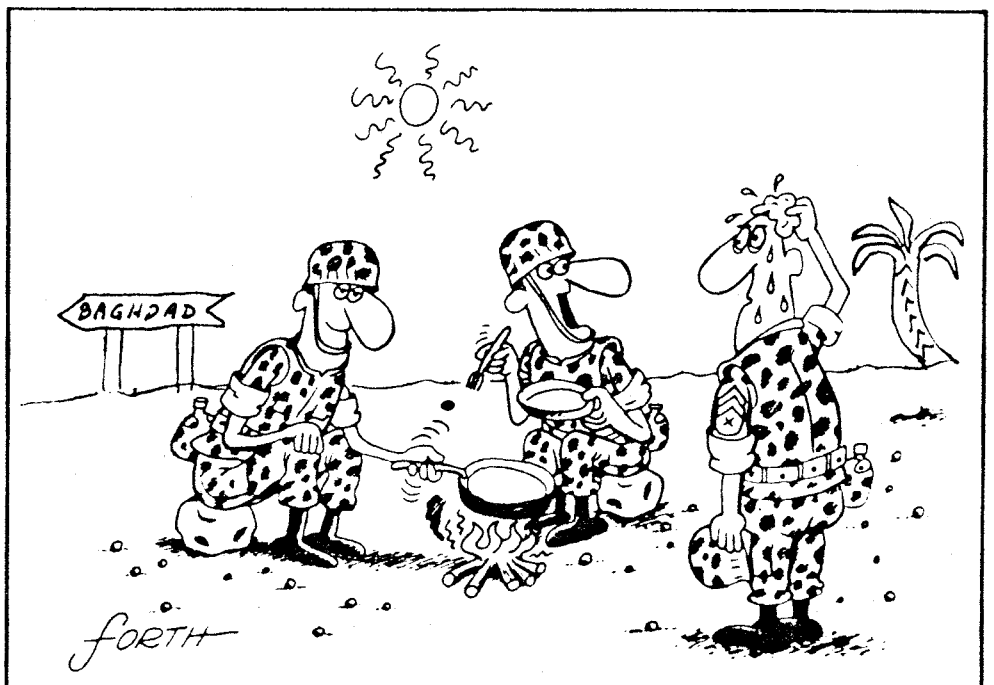


"Fenwick might be hallucinating, but this is the best mountain trout I've ever tasted!"

Implementing energy conservation

By Michael Blank, P.E.

In August, a new energy crisis developed in the Middle East so we must continue to think and implement energy conservation in our homes. There are several ways to conserve energy. Basically, every home consists of Six Systems: Building Envelope System, Heating and Air Conditioning System, Lighting System, Water Heater System, Appliances System, and Landscaping System. One of the highest-rated systems is Heating and Air Conditioning. The energy consumption is nearly 55 percent of the total energy usage in an average home. There are no miracles when it comes to saving energy. It just takes common sense and a practical, fundamental approach to reducing such energy losses as from the Building Envelope Systems, (Fig. 1) through better insulation, improved door and window components, caulking, and stripping.

Table 1 represents an Energy Saving Analysis Checklist for two major systems: Building Envelope, and Heating and Air Conditioning System. If your evaluation is "NO," check the corrective activity and implement. After implementation of these improvements, you will discover that your gas and electrical bills will be less because you will be using 30-35% less energy and you'll be a survivor of the energy crisis.

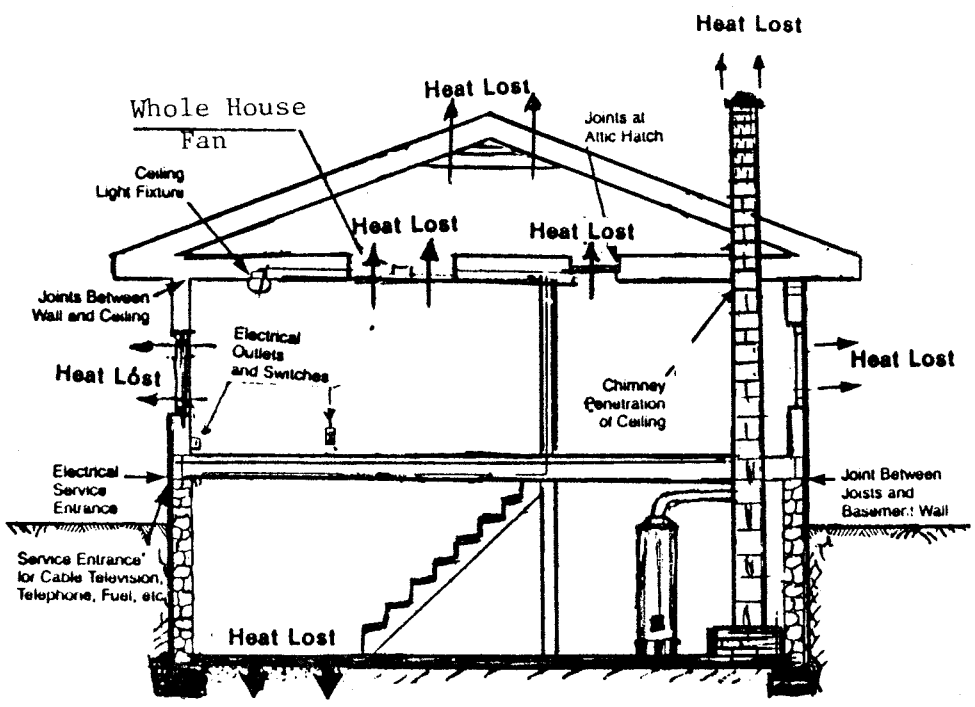


Figure 1. Heat loss from the building envelope.

Table 1. ENERGY SAVINGS ANALYSIS CHECKLIST.

SYSTEM AND BUILDING COMPONENTS	ACTIVITY IMPLEMENTATION	EVALUATION YES	EVALUATION NO
1	2	3	4
1. Building Envelope System			
a. Window	1. Caulking between tops of windows and siding.		
	2. Install storm or thermal windows		
	3. Use curtains and drapes		
	4. Install reflective film and curtain liners		
	5. Caulking at joints between window frames and siding		
	6. Repair broken pane in window		
	7. Apply weather stripping to windows		
b. Door	1. Install storm or thermal doors		
	2. Weatherstrip doors		
c. Fireplaces	1. Add glass doors		
	2. Keep damper tightly closed when not in use.		
	3. Add or repair damper		
d. Attic	1. Repair roof leak		
	2. Insulate attic floor or top floor ceiling to a minimum R-26		
	3. Install attic vents.		
e. Crawl Space and basement	1. Insulate walls		
	2. Insulate sill box area		
	3. Install storm windows		
2. Heating and Air Conditioning System	1. Install clock set-back thermostat		
	2. Tune heating system		
	3 Seal and insulate ducts		
	4. Seal and insulate pipes		
	5. Replace inefficient home heater		
	6. Install pilotless ignition for gas heating		
	7. High efficiency air conditioner replacement		
	8. Clean or replace furnace filter once a month during the heating season		
	9. Clean or replace air conditioner filter at least once a month during cooling season		
	10. Install cover or remove room air conditioner from window at end of cooling season.		
	11. Close off unused rooms		
	12. Install Whole-House fan		
	13. Install Roof Ventilators		

Hispanic Heritage Month Starts

September 15 to October 15 will mark the second Hispanic Heritage Month. Congress expanded the observance from a week to a month last year.

The 1990 theme of "500 Years of Hispanic Heritage 1492–1992 . . . Education Excellence" combines the celebration of Columbus' Spanish-sponsored voyage to the New World and a look at how Hispanics can improve their lives in the future. The Department of Defense will kick off its observance September 17 in Pentagon ceremonies featuring Education Secretary Lauro Cavazos and Assistant Secretary of Defense (Health Affairs) Dr. Enrique Mendez Jr.

Texas-born Cavazos was president of the Texas Tech University before being appointed to the Cabinet. Mendez was born in Puerto Rico, served 28 years in the Army Medical Corps and retired with the rank of major general. He was Puerto Rico's secretary of health before returning to DoD.

DoD installations worldwide will celebrate the ethnic observance with special menus, plays, skits, exhibits and guest speakers. "But, while there is a place for speeches, flags, music and cheering, these things are only temporary," said Manuel Oliverez, DoD's deputy director for civilian opportunity policy (black and Hispanic employment programs). "It's important to use this month to focus on where the Hispanic community is today and what its needs are in terms of education and employment and their roles in military services.

Send a letter from home

Those desiring to write to a Navy or Marine person aboard ship near Saudi Arabia supporting Operation Desert Shield may address a letter to:

Any Servicemember
Operation Desert Shield
Fleet Post Office
New York, NY 09866-0006

Those desiring to write to an Army, Air Force or Marine Corps person in Saudi Arabia supporting Operation Desert Shield may address a letter to:

Any Servicemember
Army Post Office
New York, NY 09848-0006

Those who wish to write to box to reach local residents may call the mobilized unit and ask which two digit number represents their shared box number.

Here are the basic restrictions:

Boxes must have a Parcel Post Customs Declaration indicating "for personal use of military personnel."

Mail may not contain religious materials contrary to Islamic faith or depicting nude or semi-nude persons, pornographic or sexual items, or non-authorized political materials.

Mail may not contain privately owned weapons.

Mail may not contain meats, including preserved meats even if hermetically sealed.

Mail may not contain alcoholic beverages.

It takes mail about ten days to arrive.

Who they are; What they do

By JO2 Michael Delledonne

"I didn't join the Navy until I was 25, so I was older than most," explained Aviation Antisubmarine Operator Second Class Stuart Mattocks. "I had several jobs before I enlisted, but I felt I needed a career change. On a whim, I talked to the Navy recruiter, liked what he had to say, and signed on. Now, I wish I had done it earlier."

Mattocks, 32, is a seven-year Navy veteran who is an acoustic operator on P-3 aircraft. "The job is really challenging," he said. "You have to make correct decisions under trying circumstances, like 12 hour flights. I really love it, I feel I'm doing a worthwhile job for the Navy."

Originally from Southern Pines, N.C., Mattocks is very impressed with the Navy and NADC. "I really enjoy the Navy and I intend on making it a career. The camaraderie at the Center is excellent, among both military and civilian. I like being at the starting point of new technology and having input to the decisions that are being made."

AW2 Stuart Mattocks

"AW2 Mattocks is a credit" *from page 1.*

we learned letters may be sent in boxes to be opened for distribution overseas.

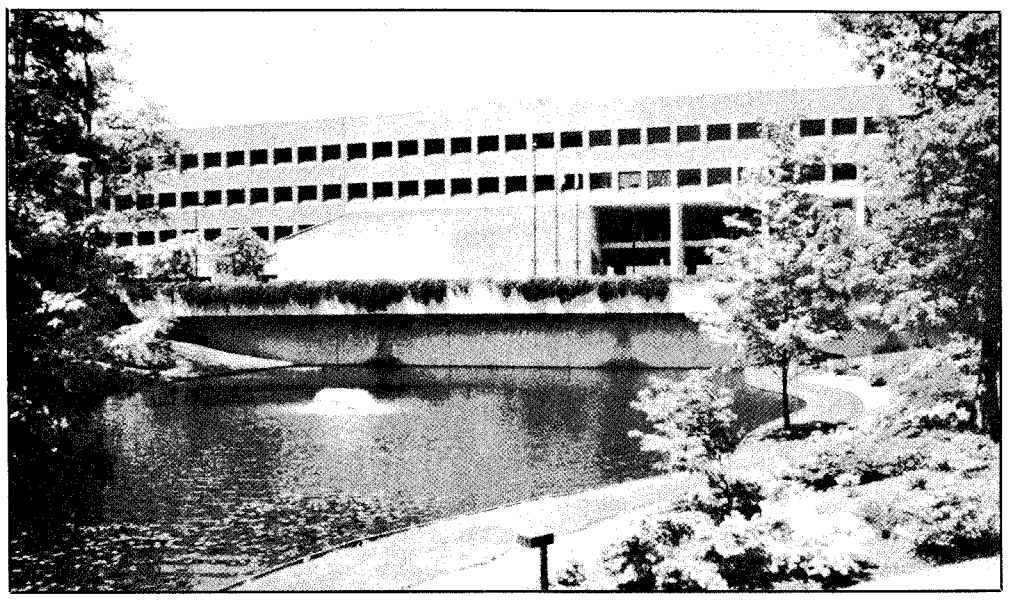
"The number of overseas boxes and the restrictions keep changing. We are getting new FAX messages all the time. Just before you called, we got official notice to lift the First Class mail only restriction. You're getting the most up to date information we have. But things are changing very fast," he said.

One postal official suggested mailing the box to the Commander of the Mail and indicate its contents on the box. "A bulk shipment of letters will not work for correspondence addressed to individuals," said Spicer.

"Every few days, Mr. Mattocks will pick up the mail from a box we're making today," said Fetterman. "We'll put anything written about Mr. Mattocks on our display wall as an example for our students."

"I needed help finding out if mail could be put in boxes and opened over there to save these school kids, or me, the first class postage, so I went to the PAO office," said Mattocks. "One postal person had said of course you can do it. One said you can't. One thought I could. One thought I couldn't. I just needed help. I only could afford to pay for boxes not individual letters."

DOD Offers tuition-free medical school



New facilities at the University of Health Sciences loacated in Bethesda, Md.

by Julie Kinder

Qualified NADC personnel are invited to apply for the Military's own medical school, the Uniformed Services University of the Health Sciences (USUHS) in Bethesda, Md.

Medical students are commissioned as ensigns or second lieutenants, and draw full military pay (approximately $23,000 a year) and benefits while in school. Tuition, books and equipment are provided.

Upon graduation, medical students receive their M.D. degree and a promotion to captain or lieutenant. They must serve seven years to pay back their education.

Students with a college degree may apply for the four-year medical program. Incoming students must be under 28 or 33 years of age with prior service.

The University also has a graduate program leading to advanced degrees.

"There is no other program like this offered anywhere in the U.S. It is a wonderful opportunity for anyone interested in combining a career as a physician with that of a military officer," said Patricia Campbell, Director of Public Affairs at USUHS. "We specifically are looking for people with military or research backgrounds and would welcome interest from individuals at NADC."

For more information, contact the Office of Admissions, ATTN: PAC, Uniformed Services University, 4301 Jones Bridge Rd., Bethesda, MD 20814-4799 or call (202) 295-3106.

Pre-School Students start school year

By Lawrence L. Lyford

Morale Welfare Recreation's (MWR), Pre-School programs held at the Youth Center in Shenandoah Woods, are currently underway and openings are still available according to Heather O'Rourke, the MWR Marketing Specialist.

The Youth Center offers three distinctively different programs, Fun-time, Pee-Wee Club and After School. "This is a great benefit for everyone at NADC. Its now open to dependents of our civilian employees as well as the military ones," said Nancy Grayson, the teacher of the four year olds. "I took the best of the outside programs and we only charge half as much."

Fun Time is a preschool program for three year olds held on Tuesday and Thursday from 9-11 am.

Funtime encourages interaction among the children in an organized play setting, helping them to enjoy fun away from home and their parents. Socialization, making friends away form home and having fun are the main goals according to Grayson. The charge for the class is $20 per month with a one time $10 registration fee.

Pee-Wee Club is a pre-school program for four year olds held on Monday, Wednesday and Fridays form 9 to 11:30 am. The Pee-Wee Club" fee is $30 per month with a $10 one time registration fee.

"The four year olds will be introduced to kindergarten prepartory curriculum including such things as ABC's, numbers, shapes, colors, time and sizes," said Grayson, their teacher. "Fine motor skills will be enhanced through cutting, pasting, coloring, writing and tracing, while large motor skills will develop through indoor and outdoor games."

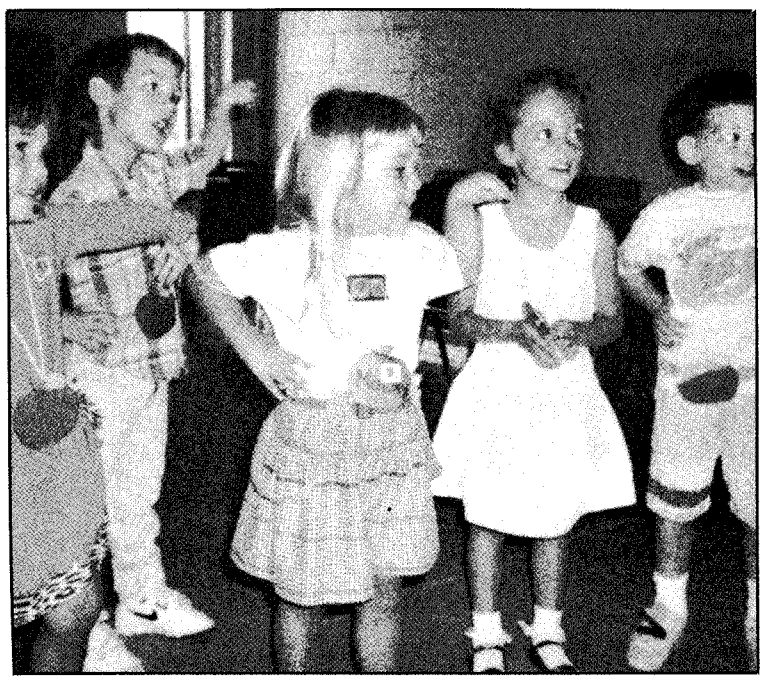
An After School program is offered Mondays through Fridays from 3 to 6 pm. for five through 12 year olds. A program leader meets the children at their school bus, assists them with their homework, provides a snack and supervises arts and crafts, games and free play.

The After School program charge is $35 per month for the first child and $30 per month for the second child. There is a one time $5 one time registration charge for each child.

Afternoon Fun Time and Pee-Wee classes may be scheduled if there is sufficient demand according to O'Rourke.

Parents are encouraged and invited to stop by to tour the facility and ask any questions they may have. For further information and registration, call the Youth Center at X7233.

The flag has its place in the youngster's lives.



Fun-Time students take "tea" break during their day at the Youth Center.

Pee-Wee's try to sit still but can't stop having fun.

MWR welcomes civilian use

By Heather O'Rourke

Morale, Welfare and Recreation (MWR), Code 045, is a Navy-wide division providing facilities, programs, activities and sports to enhance the leisure time of the active-duty sailor. Recently, the Department of Defense widened the availability of these programs and facilities to include participation by government employees on a space-available basis. This allows all NADC personnel to utilize MWR facilities and programs after purchasing a $5 annual membership.

This membership entitles the Center's civilian employees to purchase, at civilian employee fees, a Fitness Center membership, pool membership, use the sports courts and fields, borrow rental equipment, and enroll dependents in the Youth Center Program.

NADC's MWR facilities are located on the flight-line side of the Center, in and around building 99, with the exception of the Youth Center which is located in Navy Housing in Shenandoah Woods, off of Bristol Road.

In addition to specials every night in the bar and special monthly events, the Club (Crews Rest) is available for private parties and catered affairs of any size, from wedding receptions to retirement parties. Remember the Crews Rest when you plan your next party or get-together.

MWR upcoming events include a Doubles Volleyball tournament on September 22; All-You-Eat Crab Feast on October 11, 18 and 25; a Halloween Party and Haunted House on October 26; NFL Football food and drink specials on Sunday and Monday nights; Beef and Beer All-You-Can-Eat on November 2; The Great American Smoke-Out, in conjunction with Employee/Labor Management Relations Division, Code 031, on November 15; and a Winter/Holiday Fashion Show on November 30.

For more information on MWR programs and events call: MWR Director, Ron Brewer, X3438; Crews Rest Club, X7651; Youth Center, X7233; Recreation and Sports, X2510; Fitness Center, X2169; Special Events and Marketing, X2510.

PHUN PHYSIOLOGY

is swimming the best exercise? and other pool questions

by Jolie Bookspan, Ph.D.

This month ends another hot summer. Of the many pool and swimming questions I received, here are three of the most frequently asked.

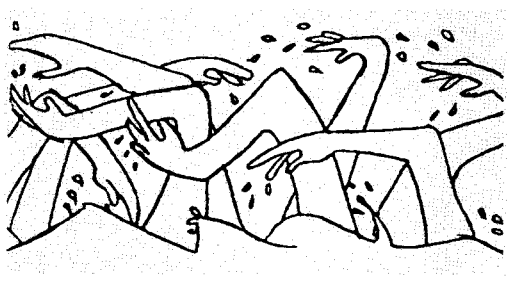
Dear Phun Phys:

I enjoy swimming after work, but my eyes burn. Is it the chlorine?

Signed, 'Burning to Know in Mission Avionics'

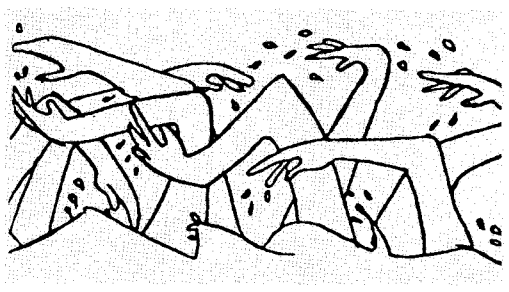
Dear Burning in Mission Avionics,

Chlorine's not the villain. When



chlorine reacts with ammonia and other nitrogen products in the water like sweat and urine, it produces ***chloramines***. It's the chloramines that burn your eyes and produce the characteristic pool smell.

Swimming pool water must meet or exceed biologic safety standards for drinkable water. Chlorine's job is to kill bacteria and algae, and mix with ammonia compounds to remove them from active status. Chlorine combines with water to form *hydro*chloric acid and *hypo*chloric acid. Hydrochloric acid is not bactericidal and is neutralized with an alkaline like bicarbonate. Hypochloric acid, however, disinfects, and does not smell, have taste, or irritate eyes. Hypochloric acid that is available to combine with ammonia compounds is called free available chlorine (FAC). If ammonia compounds are present in the water, hypochloric acid oxidizes them to form chloramines,



lowering the FAC. Chloramines are not substantially bactericidal, oxidizing at a rate 100 times slower than chlorine. Sunlight, heat, and splashing also dissipate chlorine, lowering FAC levels. Raising the FAC level to 10 times the combined level rids the pool of chloramines in a process called breakpoint chlorination.

So, get a good shower before you dive in. You'll reduce the ammonia available for combining into burning chloramines.

Dear Phun Phys:

Is it true that swimming uses all your muscles? And is it the best exercise for gaining strength and losing weight?

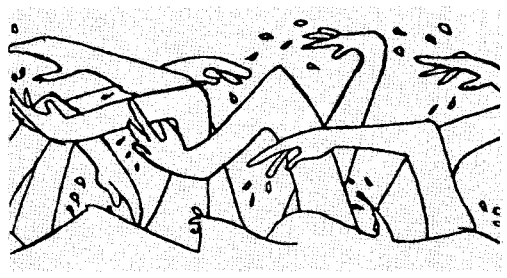
Signed 'Enlisted Man'

Dear Enlisted,

No, to all three. First, swimming uses many of the major muscle groups, but it's an exaggeration to say swimming gives them all a workout.

You have more than 600 muscles. Prime movers in swimming are about two dozen muscles that flex and extend your shoulder and elbow, and hold the wrist in line with the forearm. Most strokes, except the backstroke and sidestroke, also use muscles that bring the arm away from the body's midline ***(abductors)*** and toward the midline ***(adductors)***. Your hamstrings and quadriceps work to only a small extent, except in pretty fierce competition swimming. Except for the butterfly stroke, the abdominal muscles don't get any workout over their active range. Except in the breast stroke and elementary backstroke, the calf and shin muscles, and leg abductors and adductors barely work at all. Swimming also doesn't use muscles involved in hand grip the way windsurfing or racquet sports do, or foot muscles to the same extent as walking. However, it's often the case that the more poorly you swim, the more muscles you use.

Second, to gain strength, you need heavy resistance with few repetitions. Swimming involves many, many repetitions against light resistance. Swimming is good to build cardiovascular and muscular endurance, but can do little by itself to increase strength, unless you are debilitated from sickness or injury, or do monstrous amounts of laps at very high speeds. The large musculature of competition swimmers comes from the hours of weight training they do to become faster swimmers.



Third and last, studies now question the role of swimming in fat reduction. One theory is thermoregulatory adaptation. Regular continuing heat loss from immersion in an environment cooler than skin temperature may stimulate the body to increase subcutaneous fat deposition for insulation to reduce heat loss. Another behavioral theory supposes appetite boosts that increase total calorie intake for fat storage. Top notch competition swimmers may swim 5-10 miles a day, burn 5000 to 8000 or more calories a day, and still boast higher body fat percentages than most athletes.

So, vary your stroke, add kickboard work, and try breathing to both sides to increase muscle groups used. Swim for low impact exercise for your heart, for muscular endurance of both arms and legs, for tone, and for fun, but combine swimming with other exercise for your spare tire or to look like Atlas.

Dear Phun Phys:

I swim at the pool on base. It's great exercise but after every swim I have a headache. I don't suspect the water because I wear goggles and a cap.

Signed, 'Headache in ASW'

Dear Headache,

Sounds like a classic case of 'goggles-too-titis'. Loosen the strap. If your goggles leak then they aren't the right size. Goggles come in different sizes and shapes to accommodate different shape eye sockets ***(orbits)***. The most common shapes are round and oval.

Try on goggles before you buy them. Hold one of the eye cups against one of your orbits. Don't put the strap around your head, let it hang. Press on the eye cup. If the goggle fits, it will stick on your face by suction. If air doesn't break the seal, then neither will water. Make sure your hair isn't in your goggles either. Adjust the nose piece to your width nose then try on both eye cups and put the strap around your head in line with the eye pieces. If you get the right size goggles for your face, they will not leak. Price doesn't affect fit. Even two dollar goggles that fit well will do just fine.

Send questions for Phun Physiology to: Editor, REFLECTOR, Code 041.

Technical Highlights

(Continued from page 1)

execution on the Navy's initial desk-top computer (DTC-1). This computer has been replaced by a newer computer, DTC-2, for which TDA development now proceeds.

This latest ITDA version has been installed on the aircraft carriers Roosevelt and Eisenhower as well as the COMSECONDFLT flag ship, Mt. Whitney. Most recently at the request of both COMSECONDFLT and carrier Saratoga staffs, ITDA 2.1 was installed onboard this aircraft carrier.

Separation Tests

K. Miller (6032) travelled to NWC China Lake Ca. to participate in the I-Nights seat/man separation tests from and SJU-5A ejection seat. These tests evaluated an I-Nights helmet design to determine if there was any riser line interference and to record neck loads and moments in the Hybrid III manikin.

AILSS

G. King and L. Morelli (6032) initiated ejection tower testing of the Advanced Integrated Life Support System (AILSS). This system is being designed to enhance 'G' protection. Three different prototype configurations are being tested in the pressurized and unpressurized condition in order to ensure their integrity during ejection. Eight of seventeen planned tests have been completed to date. The Advance Integrated Life Support System Program began on the Ejection Tower. The AILSS System is being compared to a baseline through a series of 17 shots. Also, the Gentex 2000 Parogram was carried out on the Fuel Fire Test Facility.

Seat Evaluation

Completed the comparative evaluations of the NACES ejection seat versus the GRU-7 ejection seat using the Generalized Escape Simulation Computer program. Six different initial conditions were studied. Six graphs which displayed the trajectories of each seat were then used to compare system performance.

Science program works well

(Continued from page 1)

In addition to servicing NSAP task requests, the center also supports the NSAP by providing Science Advisors. Currently, Bill Gibbons (CODE 30D) is the Science Advisor to Commander, Naval Air Force, Pacific. His two year tour concludes August 1991. Ted Hungerford (Code 102) has been selected to replace Gibbons.

Security Reminder

WATCHSTANDER — The Security check should be made at the end of each work day is to ensure that:

a. classified material is properly stored, nothing adrift on desks, cabinets or mail bins,

b. all burn bags are stored or destroyed, and

c. security containers are locked. Standard Form 702 (Security Container Check Sheet) must be posted on all security containers and completed each working day.

Small Business award

(Continued from page 1)

million. From that base, NADC's Small and Disadvantaged Business achieved:

	GOAL	ACHIEVEMENT – $'s
Small Business	40%	45% – $90,949,000
Set-Aside	23%	21% – 41,644,000
Disadvantaged/ Minority	9.6%	12% – 24,500,000
Women-owned*	$1,750,000	3,101,000

*(Women-owned goal was expressed only in dollars)

Against total Research and Development (R&D) dollars of $110,297,000:

Small Business R&D	37%	38% – $41,761,000
Historically Black Colleges, Universities & Minority Institutions	5%	10.5% – $115,000

From a total of $1.1 million contract dollars available to higher education institutions:

According to Scott, "The most significant increases were in minority contracts and the newly established Historically Black Colleges and Universities programs. The 12% total contract dollars to minority businesses represents one of the highest achievements in the Navy. The contract awards to Historically Black Colleges and Universities is a significant milestone among Navy laboratories and is more than twice the amount awarded by any other lab.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

All-star Extravaganza Wraps-up Softball Season

By Jack Eyth

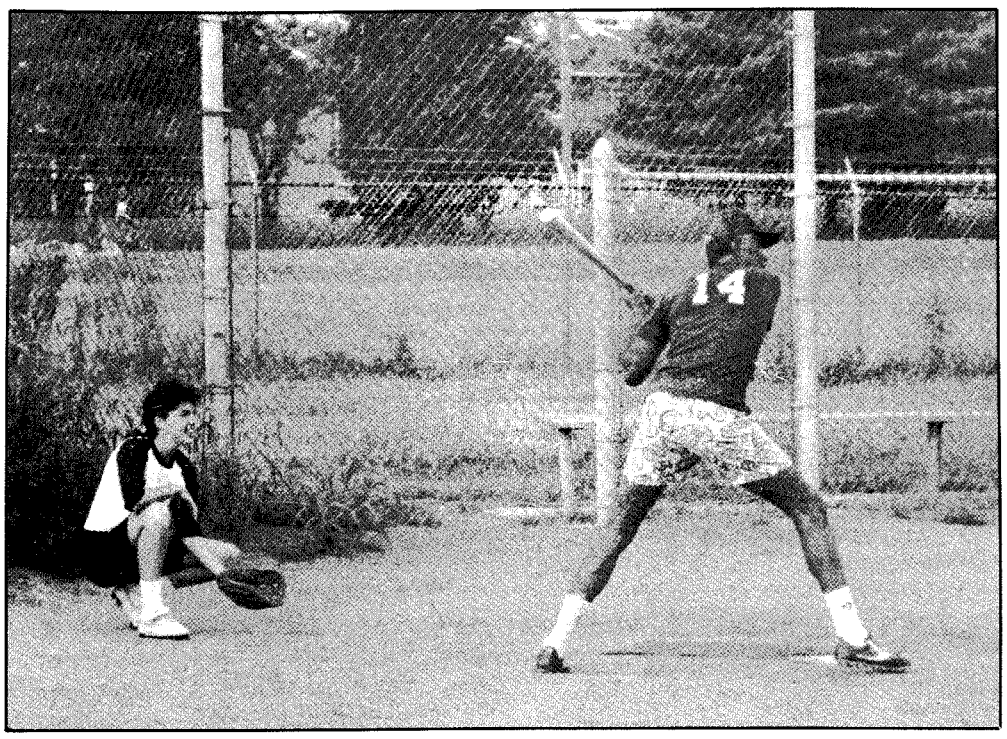
The fans and players of the NADC Softball League were treated to the Annual All-Star Double Header on 15 August 1990. Activities included a warm-up game between a collection of women's all-stars against the league managers, followed by the official all-star game with free food and refreshments provided by the league.

The first game included plenty of scoring opportunities as the women all-stars and the managers played to a 7-7 tie. The co-coaches of the women's team, Jim Campana and Nancy Harned, threw a loaded line-up at the league managers, coached by Jack Eyth. The game was close until the fourth inning when Carolyn Geyer broke the game open with a bases-loaded triple over the head of left-fielder Jim "Hollywood" Henderson. The managers saved their fireworks until the seventh inning when Pat Ford tied the game with a double. Instead of playing extra innings, the two teams shook hands and wandered over to watch the official all-star game.

The official all-star game featured a crop of new players and two rookie coaches, Steve Spadafora for Team 1 and Bob Seltzer for Team 2. The team rosters for both games are shown below. This game turned out to be a pitchers' duel which Team 2 won by the score of 2-1 behind the combined pitching talents of Bob Larr, John DeValle and Bill Schork. Because of the low score, there weren't many offensive highlights. The two runs scored by winning Team 2 were batted in by Mike Poli and Dean Kimmelheim. Team 1 Coach "Spuds" Spadafora wound up scoring the only run for his team after getting on base on a walk.

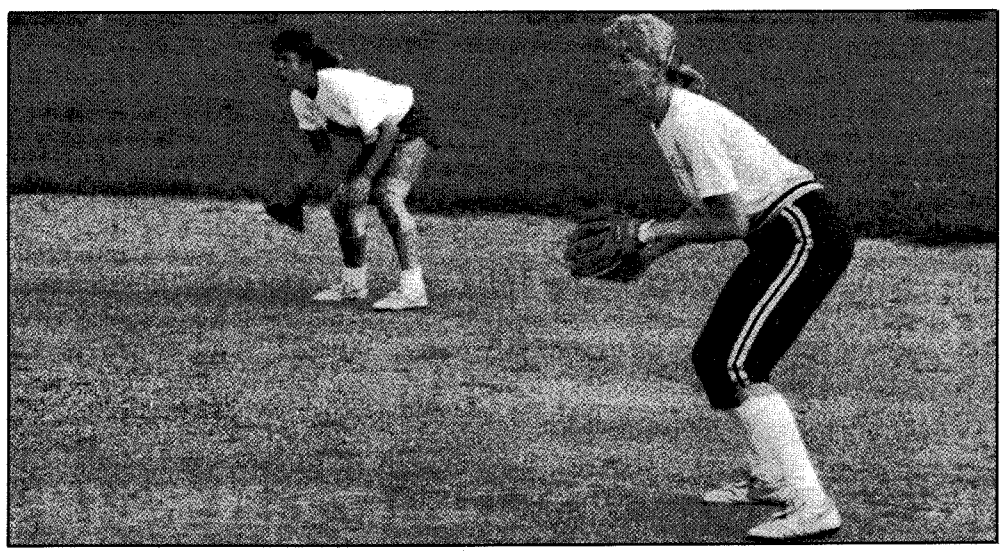
At the end of the game, the prestigious Jerry Guarini Sportsmanship Award was presented to retired Guzzler John Bowes. All in all, the Extravaganza was an enjoyable family outing for 70 players and fans.

All-Star Team 1	vs.	All-Star Team 2	Womens' Team	vs.	League Managers'
S. Lassen		J. Connors	N. Harned		D. Schmidt
S. Holloway		A. Redd	L. Johnson		M. Searles
T. Naugle		E. Zawatski	P. Aspinall		M. Lilly
R. Ianaierri		M. Warren	G. Decker		J. Price
E. Howard		D. Schmidt	C. Geyer		J. Henderson
J. Price		M. Searles	D. Morgan		D. Weaver
C. Elicker		J. Thornton	M. Campana		P. Ford
D. Slomeana		R. Billmers	H. Murnin		S. Spadafora
J. Corsello		W. Arnold	J. McKnight		W. Schork
D. Shinn		M. Poli	L. Lasorda		T. Kister
A. Washco		D. Kimmelheim			J. Glatz
A. Hribar		T. Barry	Coaches:		
J. Benci		M. Janinek	J. Campana		Coach:
J. Wexler		J. Zarzacka	N. Harned		J. Eyth
C. Vind		L. Blazik			
T. McGovern		R. Krazansky			
E. Reed		R. Larr			
E. Swiski		J. DeValle			
N. Reiss		W. Schork			
Coach:		Coach:			
S. Spadafora		R. Seltzer			



Catcher Patty Aspinall waits for pitch behind Jim Henderson in Women's All-Stars vs. League Manager's game.

Steve Spadafora Connects in his first atbat in the official All-Star game. The catcher is Bill Arnold. The umpire is Mark Lilly.



Lorraine Lasorda and Corolyn Geyer playing intense defense during the Women All-Stars vs. League Managers game.

Women's All-Stars vs. League Manager's after the game ended in a 7-7 tie.

Mixed League Bowling News—

By Tom Reiter

Welcome to another season. The Mixed League started this year with one very important change. As of this writing, our 24 team league only has 23 team rosters. Several teams had a hard time selecting a captain (no one wanted the job) and as a result of combining team members, we were able to start a new team yet lost an entire team. If any enterprising bowler out there wishes to join in our fun and games each Wednesday after work, we welcome your entry. Contact **Jim Campana** on extension 7613 with a roster of at least two members of either gender. We bowl with a five-person line-up, but it's suggested that you carry an additional few subs (the league can furnish the subs).

Since this is a season of many player changes, the championship field is wide open. Last year's winners, **Lorraine Williams**' From the Gutter, has been decimated, but **Rick Yeager** vows to carry on their winning tradition. The strength seems to be in the B Division where 9 of the 12 teams have gone to the playoffs in previous years.

Here's wishing all of our 240 bowlers good luck and good bowling. Remember the banquet is only nine months away.

J. BARTON 5021

NADC Reflector

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In This Issue:

Interoperability of Sonobuoys success

Cotilla honored in ceremony at Pentagon

By Lawrence L. Lyford

At a Pentagon ceremony on September 19, Edward Cotilla, Code 104, was awarded The Technical Cooperation Program (TTCP) Achievement Award in Subgroup G (Undersea Warfare) for his work on Interoperability of Sonobuoys at a ceremony held in the "E" Wing of the Pentagon. "This recognizes the achievements of the best scientists who might otherwise not be formally recognized at the Pentagon," said James Terrell, Deputy Director, Defense Research and Engineering (Research and Advanced Technology).

The TTCP award was given in recognition of work by Technical Panel GTP-10 for which Cotilla is the U. S. national leader. This panel ensured sonobuoys are integrated with aircraft systems under a common, uniform, five-nation specification. The sonobuoys of the United States, Canada, the United Kingdom, Australia and New Zealand may be launched, controled and monitored by any of the five nations' ASW aircraft. "Joint use is now practiced in multinational training exercises." said Cotillal "In actual conflict, a member nation could borrow sonobuoys from any of the others to cover shortages and nations could work ASW operation jointly."

The panel's work required careful oversight of the development process from measurement of the environment through concept exploration to the specification and testing of final products.

Once common interface specifications were completed and sonobuoys were ready for testing, all the nations participated in fixed-wing and rotary-wing aircraft demonstrations which proved the interoperability, according to Cotilla.

The award was made for work with significant value for defense needs. The work spanned a decade and demonstrated the exploitation of mature and emerging technology. "It also was a classic example of multinational technical collaboration. It resulted in all five nations being able to use each other's sonobuoys without any loss in operational capability," said Cotilla.

"The award represents the work of panel members Joe McCandles and Bob Balonis from Code 504 and the support from many years of many NADC personnel," said Cotilla.

Part of Cotilla's recognition was for his contribution to the enhanced performance of sonobuoys and demonstration of the benefits achieved by cooperative programs.

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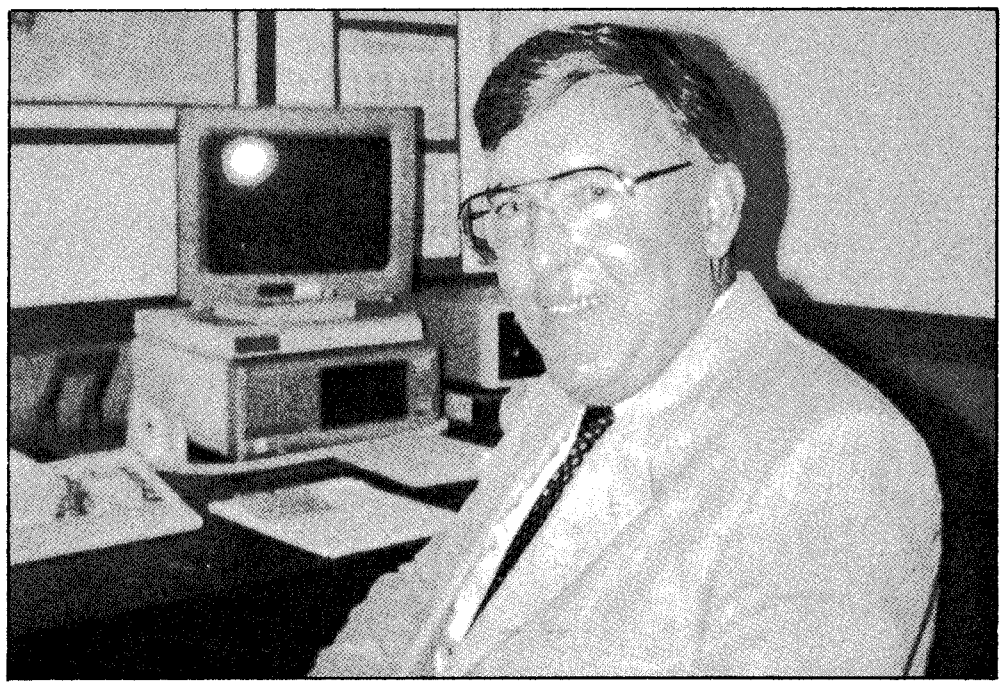


Edward Cotilla, Code 104

Inventors may share in profits

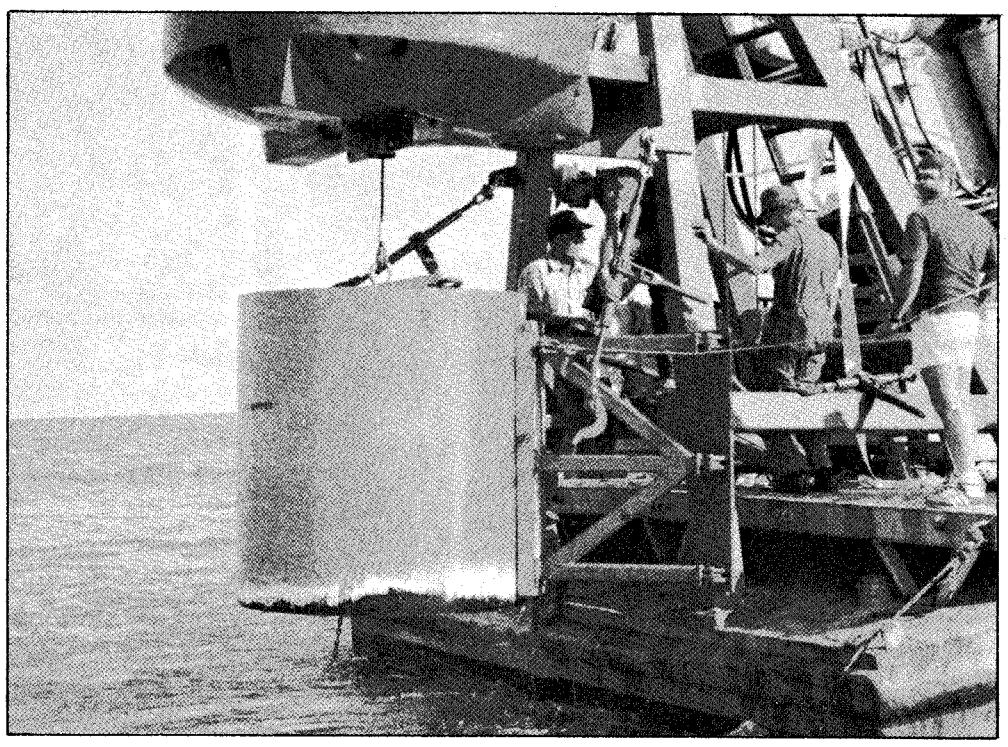
By Lawrence L. Lyford

"Inventors who were once satisfied by publishing their inventions are now considering getting a patent. We are here to make this possible," said James V. Tura, NADC's Deputy Counsel for Patents.

Tura started his career in Government and chose to end it in Government. "I came to NADC because this is where some of the best scientists and engineers are located and private industry needs the rights to our intellectual property. The Patent Department together

See PATENT Page 5

NADC Key West Detachment supports fleet R&D projects



Employees of General Off-Shore, the test contractor, prepare to lower explosive charge into the ocean. Only a balancing weight and float are visible. These are blown into the air by the test detonation.

By Lawrence L. Lyford

NADC has facilities in Key West, Florida staffed by dedicated individuals who work far from the limelight most of the time but whose work is important to the Fleet. Some of its testing is so important, it is mandated by Congress.

The "The Real World Laboratory" detachment provides everything necessary to support requested tests. It serves as a focal point for planning, scheduling, and executing complex test support requirements in the field. Through continuing dialogue with project sponsors, it anticipates future RDT&E needs and participates in developing test scenarios.

It offers: vital engineering/shore-based logistic support services, staging areas, and diverse ocean environments for conducting air/sea operations within ten to thirty miles of shore; laboratories and shops which provide on-site fabrication and modification capabilities; 10,000 square miles of unrestricted air and sea space; a subtropical climate enhanced by clear ocean water for year-round shallow and deep water testing.

"Cooperation among Detachment and user personnel are key aspects of the Navy's RDT&E program at Key West and St. Croix," said Lawrence F. Coar, Code 50.

In addition to NADC ASW sensors and systems, the Detachment works with other DOD laboratories to support studies of naval weapon systems, oceanographic instrumentation, water pollution, and thermal energy conversion.

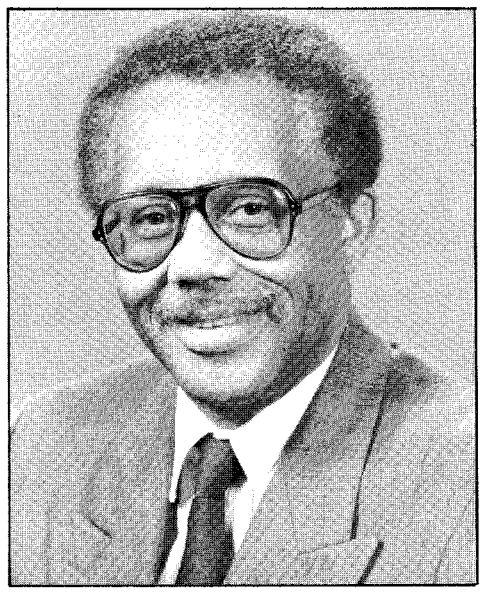
The detachment has supported the Helicopter Emergency Flotation System (HEFS). This provides critical flotation time, allowing crew escape and possible helicopter recovery.

Using a refurbished H-46 airframe, NADC and Detachment engineers tested HEFS at the Key West facility. Tests proved HEFS could maintain the

See "REAL" Page 5

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Commander Salutes

Charles F. Rosso, (Code 103): For your notable efforts in support of the BEARTRAP Program.

Thomas Weaver, (Code 103): For your excellent and thorough presentation on the P-3C Update II to the Naval Reserve Unit—NADC 0193.

John Metzer, (Code 2012): For your outstanding performance at the Class Desk Engineer for the Medium Range Unmanned Aerial Vehicle Program.

Bilal Alam, Samuel Newman, (Code 4012); Neil Weiman, (Code 4013); Frederick Werrell, (Code 4045): For your fine efforts as reviewers of the GPS Computer Program Product Specifications.

David Felker, (Code40L); James Fingerle, Kirk Oschmann, Joe Schnecker, (Code 4041): For your effective participation in the Milstar Interoperability Demonstration.

Laurie Bryner, (Code 5013): For your support of the Aircraft Night Vision Imaging System and your significant contribution to the Army Aviation Combat Lighting Program.

Michael Mocenter, (Code 5013): For your support of the Navy MOSES experiment and your significant contribution to the Space Test Program.

Vinod Agarwala, (Code 6062): For your outstanding lecture on "Corrosion and Aging Aircraft" at the 1990 Gordon Research Conference.

Shawn Donley, (Code 6012): For your support and outstanding contributions to the Naval Air Systems Command (AIR-93) on the X-31A program.

Vince Palagruto, (Code 6014): For your support to the Pacific Missile Range Facility.

John W. Parker III, (Code 6022): For your support to the Army Armament Research, Development and Engineering Center.

HMC Duane Murray, (Code 6025); Jack Eyth, Gail Hunn, Dennis Kiefer, Carl Pierce, (Code 6035): For your participation in the Bucks County Science Seminar Program.

Maria DiPasquantonio, (Code 6051); Janettarose L. Greene, (Code 6022); James McNair, (Code 6024); Joseph Bunting, (Code 7011): For your participation at the Career Day at the McCloskey School in Philadelphia.

Susan Smith, (Code 60): For the outstanding assistance you provided as a member of the X-31A team.

If the SOC fits

By Robert Janes, General Counsel

One area of the Standards of Conduct (SOC) where questions often arise at this time of year is the Hatch Act, the 50-year old law which restricts the political activities of federal employees.

In recent years, there has been growing interest in amending the Act and easing its restrictions. Indeed, it appeared that the Act would be amended during the last few months, but that has not yet happened. If and when it does, we will advise you of the changes in the law, but until then, here are some of the basics of the law as it presently stands:

Coverage - All NADC civilian employees are covered by the law. It applies to both part-time and temporary employees, and to employees while on leave. Although the Hatch Act itself does not apply to uniformed military personnel, virtually the same rules have been made applicable to the military under other laws and DoD regulations.

Running for Office - Employees may run for office only in non-partisan elections, i.e., where none of the candidates are representatives of the Democratic or Republican parties. In a partisan election, i.e., where one or more of the candidates is running as a Democrat or Republican, a federal employee may not also run in that election, even as an independent candidate.

Financial Contributions - Employees may make contributions to political organizations, but are prohibited from either soliciting or collecting contributions for such organizations.

Expressing Opinions and Views - Employees may express their views publicly or privately about a particular candidate or about political issues, but they may not engage in active campaigning for partisan candidates.

Political Rallies and Clubs - Employees may attend political rallies as spectators, but may not participate in the rallies by carrying banners or placards. They may join partisan political clubs, but cannot take an active part in the management of such clubs, or serve as officers or members of any club committees.

Spouses - The law does not restrict the activities of an employee's spouse or of other family members in any way.

If you have questions about the Hatch Act, please contact us in the Office of Counsel, Extension 3000, for advice and guidance.

Technical Highlights

JTIDS/MIDS – NADC generated a draft F/A-18 Addendum Specification to the System Segment Specification for the Multifunctional Information Distribution System (MIDS) low volume terminal. This specification has also been adopted by Spain for their F/A-18 configuration. Additionally, this specification was used by the MIDS Working Group 2 during their meeting in Brussels.

Center Personnel recently supported the Global Position System (GPS) Miniature Airborne GPS Receiver (MAGR) source selection. The MAGR unit is a 3/8 ATR short GPS receiver that is intended for use aboard Fighter/Attack or any space limited airborne platform. This was the culmination of a multiyear Center effort in defining the MAGR requirements, developing the performance specifications, and in general supporting the entire MAGR acquisition process.

INAV — Integrated Navigation System

A joint effort between NADC and WRDC was initiated to modify the existing contract specification with Northrop to include development of a small stellar-inertial system for SDIO space based applications. NADC indicated to WRDC that budget constraints would not permit NADC to fund the INAV program at the levels previously planned. As a result the specification was also changed to delete development of a separate Navy brassboard configuration. The contractor will now design, develop and deliver one INAV system for joint Air Force/Navy verification testing.

SAHRS – Standard Attitude Heading Reference System

NADC conducted vibration tests on a Boeing consigned SAHRS unit in support of the on-going V-22 SAHRS laboratory test and evaluation program. Tests were conducted on the CARCO multi-axis test table to include the low frequency response characteristics (gain and phase plots) typical of the V-22 operating environment. Test results were forwarded to Boeing and NAVAIRSYSCOM.

SC/AHRS – Standard Compass/Attitude Heading Reference System

The SC/AHRS draft RFP is still being updated by the Air Force to incorporate the requirements of new SC/AHRS users, the Air Force F-15 and C-130 aircraft. These aircraft are budgeting for the SC/AHRS and the Air Force required quantity has risen from 2300 to 3000. The Air Force T-38 aircraft, which plans to have GPS, will use GPS funds for their SC/AHRS procurement. The Navy C0135 and E-3 aircraft users do not have funding identified for the program, but still need a compass. The SC/AHRS program has placed them in a potential SC/AHRS user category.

Energy Corner

Q. How many years passed between the conception and realization of the fluorescent light?

A. 33 years.

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.

Q. The average U.S. citizen uses the energy equivalent of 1 barrel of oil every __ days.

A. Six

Q. How was one of the earliest methods of cooling created?

A. Through the evaporation of water.

Q. What are the four major forms of energy?

A. Heat, light, sound, and electricity.

Q. How many pounds of garbage does the average American produce per day?

A. Four to six pounds. Double that produced by the typical Japanese, West German or Swedish citizen.

Q. What four factors affect human comfort?

A. Air temperature, radiation, relative humidity, and air movement.

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Public Affairs Officer ..... **James S. Kingston**
Editor ..... **Lawrence L. Lyford**
Assistant Editor ..... **JO2 Michael Delledonne**
Assistant Editor ..... **Margaret Vigelis**

Wiesemann selected for NSTEP position

By Margaret Vigelis

William Wiesemann

William Wiesemann, NADC's Scientific and Technical Intelligence Liaison Officer (STILO), was selected for the Navy Scientific Training and Evaluation Progam (NSTEP) position of Associate Director of Advanced Systems Concepts at the Space and Naval Warfare Systems Command (SPAWAR). He begins his new one year NSTEP assignment in October.

"I'll be working with the technology people at all the labs and with OPNAV evaluating the various technologies to see which will have the most impact on warfare systems architecture and engineering in the future," said Wiesemann.

As STILO, Wiesemann interfaced regularly with the U.S. Intelligence Community in support of Center projects. His new assignment will give him the opportunity to get back into hands-on engineering. The main focus of his position will be the development, evaluation, and transition of innovative advanced systems concepts on the basis of technical, operational, programmatic and architectural issues. Other aspects of his job will be to assess the projected capabilities of the DOD scientific & technical base and solicit novel advanced systems concepts for priority Battle Force shortfalls.

Wiesemann feels this will be an opportunity for growth. "I think it will be interesting and challenging, and certainly for me a new area, a new field. Change is sometimes disruptive but often necessary to enable us to reach our full potential."

NADC Firefighters adopt fitness program

By JO2 Michael Delledonne

NADC firefighters particpated in the Air Force Firefighters Physical Fitness Program, adopted by the Navy in its entirety.

The program involves the use of an exercise bike and supporting computer software. "The program is designed to improve firefighters capability to perform fire ground operations," explained John Hannon, Northern Division Area Fire Marshall. "The beauty of the program is its individualized. Each firefighter follows the program for 16 weeks and is then retested for improvement."

The program, which was solely on a voluntary basis before, has now become mandatory. "I know there are people out there who are not going to like it. In the long run, the firefighter will become a better firefighter because he will be more physically fit," noted Hannon. "The enthusiasm of the participants tells us that they know we need a program like this and they are willing to work at it."

Assistant Fire Chief for Training, Vince Crusco was one of the participants and likes the program. "I'm very interested and excited," said Crusco. "It now gives us a way to strengthen and monitor our firefighters. The program will have immediate physical and psychlogical effects. It will makes us better prepared to handle fires and rescues."

They appreciate real science experience

Future scientists apprentice at NADC

Six students from local area high schools had an opportunity to work with the engineers and scientists at the Naval Air Development Center this summer as participants in the Center's Scientific and Engineering Apprenticeship Program, which offers employment and an opportunity for hands-on technical experience in a research and development environment to local talented youths.

The students, Paul Braun, Frank Fisher, Michael Fohner (Archbishop Wood), Evan Bundis (Council Rock), Michael LaLena (LaSalle) and Robert Weggel (Abington), all had close to a 4.0 GPA. "This experience has solidified in my mind that engineering is the career I wish to pursue," said Paul Braun who was employed in the Mission and Avionics Technology Department, Microwave Technology Division, Code 5021. Paul has started in his first year at Drexel University in Electrical/Computer Engineering.

> "I was able . . . to watch real scientists."

"What I liked most about the program was the fact that I was able to work in a scientific setting. The chance to watch real scientists was both exciting and worthwhile," said Frank Fisher (Code 5024).

According to Eileen Craig, Program Coordinator, Civilian Personnel Department, "Announcements are sent to local high schools early each spring and nominations are made by the high school guidance counselors. Selections are made on the basis of grades, recommendations from high school counselors, and the student's interest in a future career in engineering and science."

☆ ☆ ☆ ☆ ☆ ☆

Pilot course helps sharpen skills — Center and employees benefit

By Lawrence L. Lyford

Recently, several NADC employees completed a specially designed basic skills course. The course was customized by the Beaver College Center for Corporate and Professional Development. "This is definitely a skills sharpening course," said Mary Kerns, the coordinator of the program at NADC. "Students improve their grammar, syntax, writing and telephone skills."

The class meets a half day per week for six weeks instead of five full, consecutive days. This modular approach extends the length of the course but benefits both the students and their supervisers. Students have time to digest the class material and complete homework prior to the subsequent classes. The learning is more efficient according to Kerns and they are still available in the afternoon, after class, to do their most critical work for that day.

"The Office of Personnel Management in Washington is evaluating this on-site modular concept. Student retention is much better and the employee is not lost to the supervisor for a whole week," said Kerns. "The course helps students build basic office skills and can build confidence and desire for additional formal training. Either way, both the employees and the Center benefit."

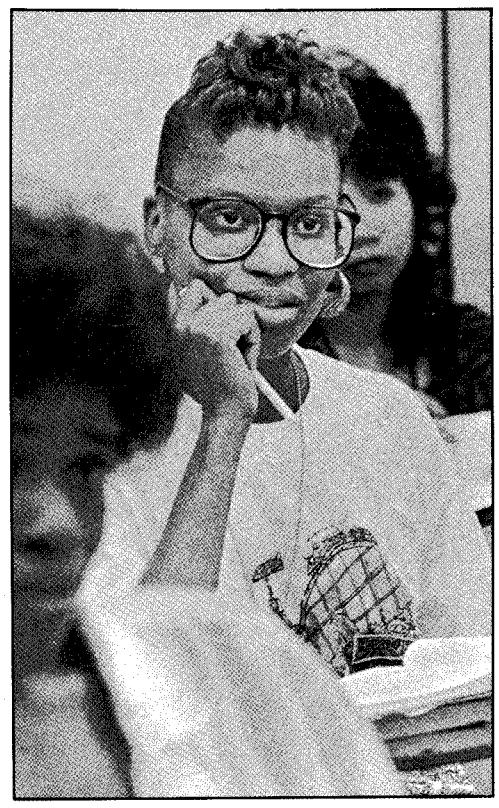
This course puts employees on an equal footing. The curriculum of local high schools vary so widely as do the students' backgrounds. This course fills in important gaps. Between the weekly three hour sessions, mentors met with the students so group strengths and one-on-one advantages were available.

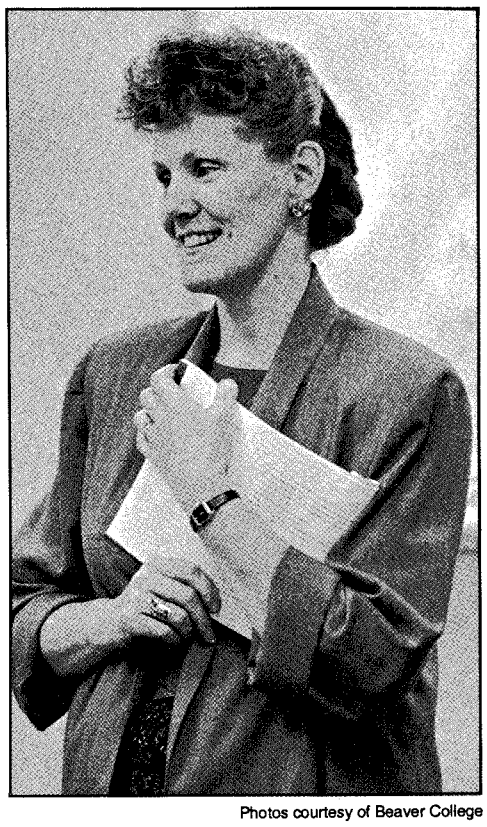
"I graduated from high school 13 years ago and I forgot a lot of what I learned. Now I'm more aware of what I write. I recommend it. I was able to keep up with my office work as well as learn. That was one of the best parts," said Carmen Soto, Code 8452.

Sheldon Weisman, Code 1011, was a volunteer instructor for the students so we really got twice the training as first visualized Kerns reported.

"I was the link between the students and the instructors. I helped with homework and relayed questions and recommended follow up emphasis to the Beaver instructors. I was impressed with the students' interest in improving their basic office skills. Most of them will be our future secretaries, so I was glad to help. I'd even help during the lunch period if that's one of the changes our experience supports," said Weisman.

This training is part of a longer program and a growing trend to provide employer-based, post high school training. Time spent in formal employer-provided training will surpass the time spent in high school or college over the span of a career. Formal learning will never cease. Satellite courses are linking universities and the increasingly employers' training/ resource centers. This program provides help at the entrance level according to Kerns.





Photos courtesy of Beaver College

Lisa Gransby listens as Beaver College instructor, Carolyn Mee presents material.

First MWR Fashion Show gets rave reviews

By Margaret Vigelis

The first Morale, Welfare and Recreation (MWR) Luncheon and Fashion Show held at the Crews Rest played to a full house. The 130 who attended viewed a wide selection of clothing styles — contemporary sportswear, career apparel, active/workout clothes and evening wear.

After all helped themselves to the bountiful buffet, the lights came on and the show began. Models stepped out to the music's lively tempo and performed their routines with spirit and enthusiasm to the delight and approval of the audience.

The crowd's reaction to the show was positive and unanimous. Among the comments heard afterwards were:

"The models were professional and carried the fashion show off well. It was interesting and fun, I hope we can all enjoy another one soon," Chris Anderson, Code 00A

"It was excellent. The models good, fashions appropriate, and the food delicious. Well worth the price - you can't eat anywhere for eight dollars and get entertainment. I'd go again,"

Kathleen Felts, Code 044

"It was great,"

Ronnie Kinder, Code 1001

"I found it refreshing and entertaining, not just one of your "run-of-the-mill" fashion shows. The models poised and talented performing their routines of dance and pantomine,"

Helen Watkins, Code 8457

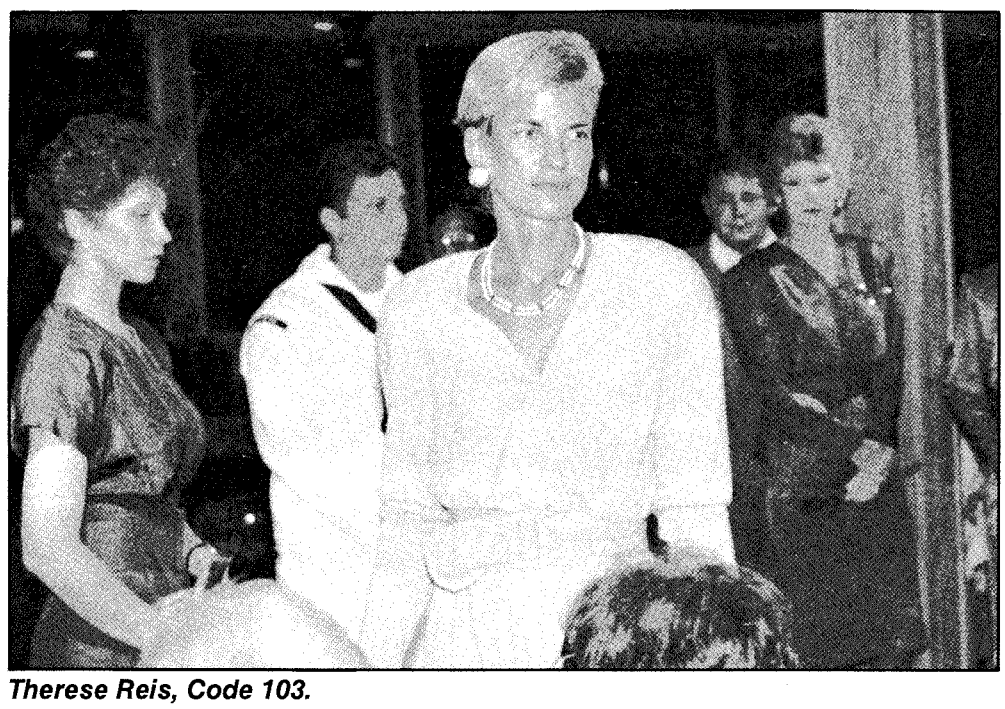
"It was an excellent morale booster. I thought it was well prepared and organized and I thoroughly enjoyed the talented NADC personnel."

Peg Kosanchuk, Code 0211

The fashions for the show were provided by T. J. Maxx and modeled by Julie Kinder, Code 041; Michael Delledonne, Code 041; Margaret Vigelis,Code 041; Rob Long, Code 042; JoAnn West, Code 045; Joe Emperly, Code 101; Beth Mumford, Code 101; Tim Herten, Code 101; Therese Reis, Code 103; Eileen McKeough, Code 104; Chuck Harrison, Code 91; Daniel Murphy, Code 92; Howard Wortley, U.S. Army National Guard and Jacque Emperly, spouse.

Heather O'Rouke, Code 045, the show's organizer was pleased it was a success. Commenting that she received written thanks from the Public Works and Technical Services Departments, she said "Hearing how everyone enjoyed the show and had a good time makes all the work worthwhile." O'Rouke has scheduled another fashion show for November 30. She is looking forward to another great time and hopes to see you all there.

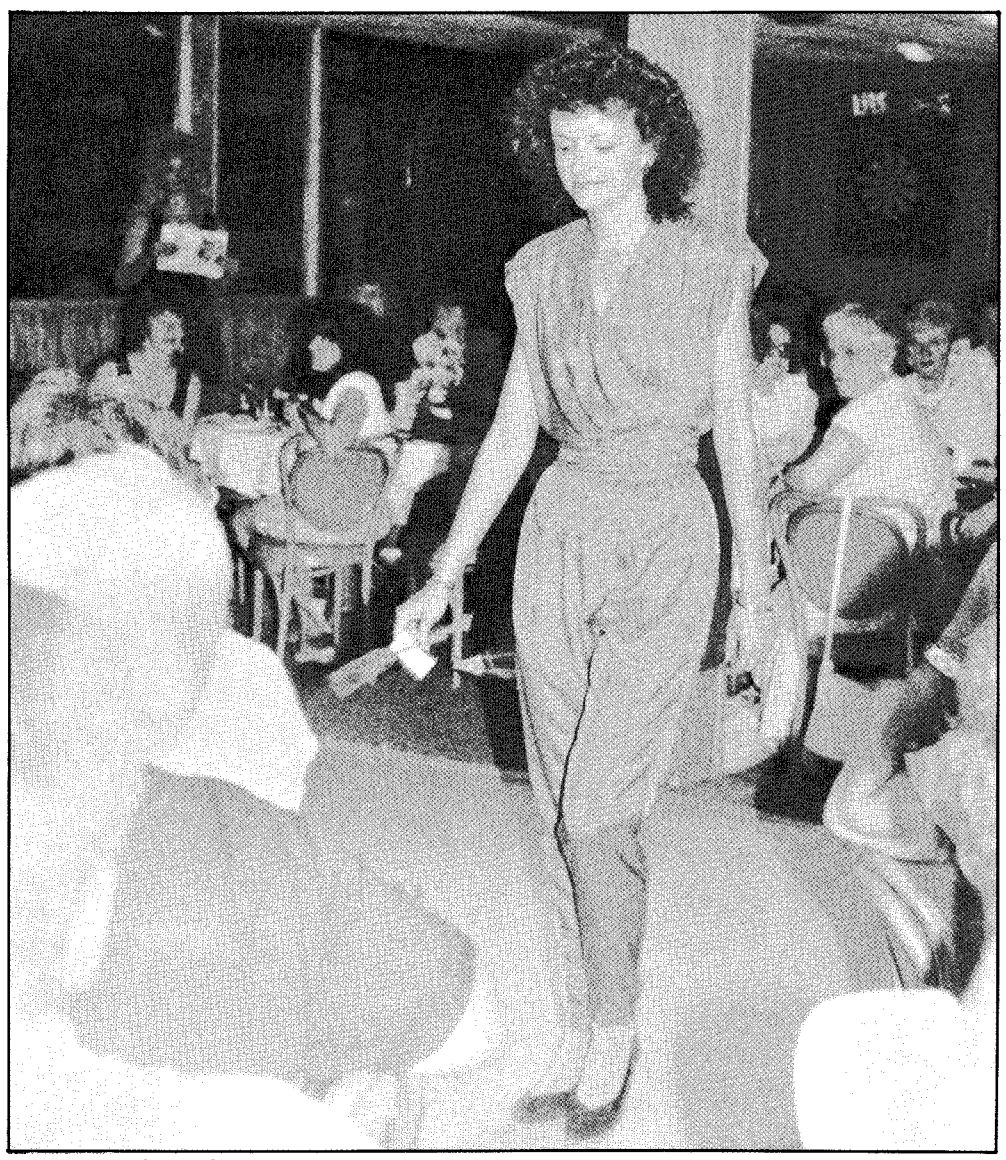
Julie Kinder, Code 41.



Therese Reis, Code 103.

Jacque Emperly

Eileen McKeogh, Code 104



Beth Mumford, Code 101.

Photos courtesy of David Ritho

Patent office helps inventors

Continued from Page 1.

with Jerry Bortman and the Office of Technology Transfer are helping the inventors and the laboratory earn royalty income. Of course, our first mission is to protect the government's intellectual property for the government."

The Patent Counsel's office door is always open to inventors. No permission is needed to begin the patent process, but departments should be informed on what's happening. CAPT Curtis J. Winters has said the number of patents the Center receives is one of the measures of the Total Quality Management Program for the Center. There are three Patent Attorneys, Susan E. Verona, James B. Bechtel and James V. Tura. Verona particularly specializes in Metallurgy, Bechtel in Mechanical Engineering and Tura in Chemical Engineering. Some of the highly technical electrical cases have to be contracted out to an electrical patent specialist.

"We want everybody to be as proficient as our 'old hands' are at getting patents."

Tura hopes to re-start a program of conducting department seminars on patent matters to help inventors understand the process. Some employees have no formal understanding of the requirements needed to obtain a patent. They understand the importance of keeping detailed engineering or lab notebooks, but don't 'visualize' that their work may qualify for a patent. "We want everybody to be as proficient as our "old hands" are at getting patents," he said.

Getting a patent starts with an individual decision to develop a patent orientation as he or she is solving a specific problem. "We want to make the potential patents actual ones," said James Bechtel, a patent attorney and a graduate of the Air Force Academy.

Getting patents is important because in 1986 the Public Law changed and now the government's goal is to transfer some of our technology to the private sector. This, in turn, will stimulate the economy, improve lives and provide income for government laboratories and inventors. Previously, patents were sought primarily as a defensive device to protect the government from having to pay royalties; as happened after WW-II when corporations started to sue the government for patent infringement. Now, the government also wants to license inventions, while retaining rights under the patents so it does not have to pay royalties or premium prices for inventions the government may need.

"We want to make the potential patents actual ones."

Presently, an inventor receives a $200 cash award with the initial filing. Then, he receives an additional $500 together with professional recognition, upon award of the patent. The inventor also can receive up to 20% of any patent royalties while NADC gets the other 80%. If the government chooses not to file for a patent, the inventor may have the opportunity to file. The government gets an automatic license for its own use, however, said Bechtel. "I believe this is generous legislation and should spur invention."

The NADC Patent Office goal this year is to file at least 50 patent applications this year. It takes about 1-1/2 to 3 years to prosecute and issue a patent. "Next year, we'll have to prosecute all those applications filed in 1990, as well as file applications of the more recent inventions," noted Bechtel.

Verona recommends that individuals who develop inventions (patents) unrelated to their work, check with Patent Counsel's Office to obtain a rights determination. This can insure the inventors that no one can later allege that the patent was the product of their employment.

Invention disclosure packages and information are available in the Patent Department (Extension 3000) for all interested personnel.

Dr. Lloyd Bobb

Bobb gets latest patent

By Lawrence L. Lyford

Dr. Lloyd C. Bobb, Code 5012, is the most recent patent recipient at NADC. He received it for his invention of an optical fiber gradiometer which decreases the size, weight and expense of multiple-order gradiometers, while facilitating their balancing and trimming.

By way of explaining a gradiometer, Dr. Bobb related it first to a magnetometer. A magnetometer is an instrument to measure magnetic field intensity in direct proportion to the sensitivity of a single sensing element. This single element provides no magnetic field background or noise rejection. Some magnetometers utilize such devices as moving or stationary coils, thin films, fluxgates, magnetic resonance devices or superconducting devices.

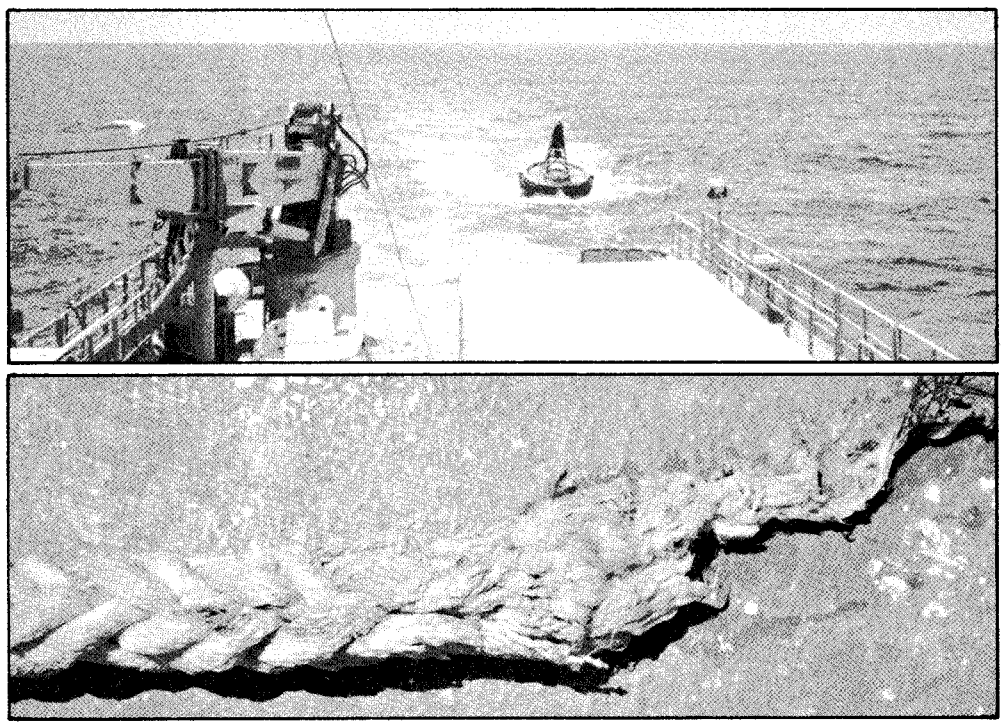
A gradiometer, on the other hand, is an instrument which is used to measure the difference between the magnetic field intensities at two separate locations. This is done with at least a pair of magnetometers. Gradiometers provide some level of background noise rejection. This is enhanced by increasing the number of magnetometer pairs. This increases the order of the gradiometer.

Where extreme sensitivity is required, superconducting quantum interference devices (SQUIDS) are used. The size, weight and expense of this cryogenic environment limits the applications.

The object of Bobb's invention is (1) to provide multiple order gradiometers which operate at ambient temperatures and (2) to structurally consolidate a plurality of magnetometers within multiple order gradiometers.

The invention allows at least one magnetostrictive segment on optical fiber elements for each magnetometer required in a multiple order gradiometer. Integrating the magnetostrictive segments on the same optical fiber elements accomplishes the structural consolidation of the magnetometers. A strain in the optical fiber is induced by the magnetostrictive segments in proportion to the intensity of the magnetic field. The difference between pairs of outputs is progressively measured to reach the desired order of magnitude.

"Real World Lab" conducts varied tests



Bouy is towed after 10,000 foot anchor line was bitten through.

Continued from Page 1.

H-46 afloat in an upright attitude for at least 10 minutes.

The Detachment provides the logistics support for ship hardening trials. That is, tests of ships to determine design adequacy to withstand underwater shock. It recently used the AB-1, a slice of an actual submarine, for shock hardening tests.

Minutes after a test explosion (at different distances and depths—simulating a conventional weapon strike at close range), engineers and ship personnel survey the instrumented structure to determine possible equipment malfunctions and assess environmental impact. Tests are delayed for the transient passage of mammals such as dolphins.

The Detachment provided support for: 1. the Active Electronic Buoy (AEB) project which verifies aircraft launch shock, water entry shock, flotation, and other buoy functions; 2. the advanced Lightweight Torpedoes project deploys from aircraft against a submarine; 3. the Mine Neutralization System project which deactivates undesired mines; 4. the Inertial Navigation Systems project which validates and verifies systems against precision radio navigation systems; 5. the Swimmer Weapon Systems project which involved testing of equipment and explosives by frogmen, SEALS, and underwater demolition teams; 6. the Signal Underwater (SUS) project which evaluated survival of water entry and reliability of various designs; 7. the Wood and Cement Degradation studies which evaluate materials for deterioration in tropical saltwater environments; 8. and various other "special programs".

Presently, it supports approximately 20 other DOD facilities with their test support requirements.

Photos courtesy of David Ritho

Samuel and Thomas Lugo (whose parent works at NADC Code 201) have fun during the after-school program.

Civilian employees' dependents can utilize after school program

By Heather O'Rourke

Working parents of school age children are faced with the question, "What do I do with my children after school, until my work day is over?" This dilemma can create logistical problems that elevate an already high stress level. Who needs it!

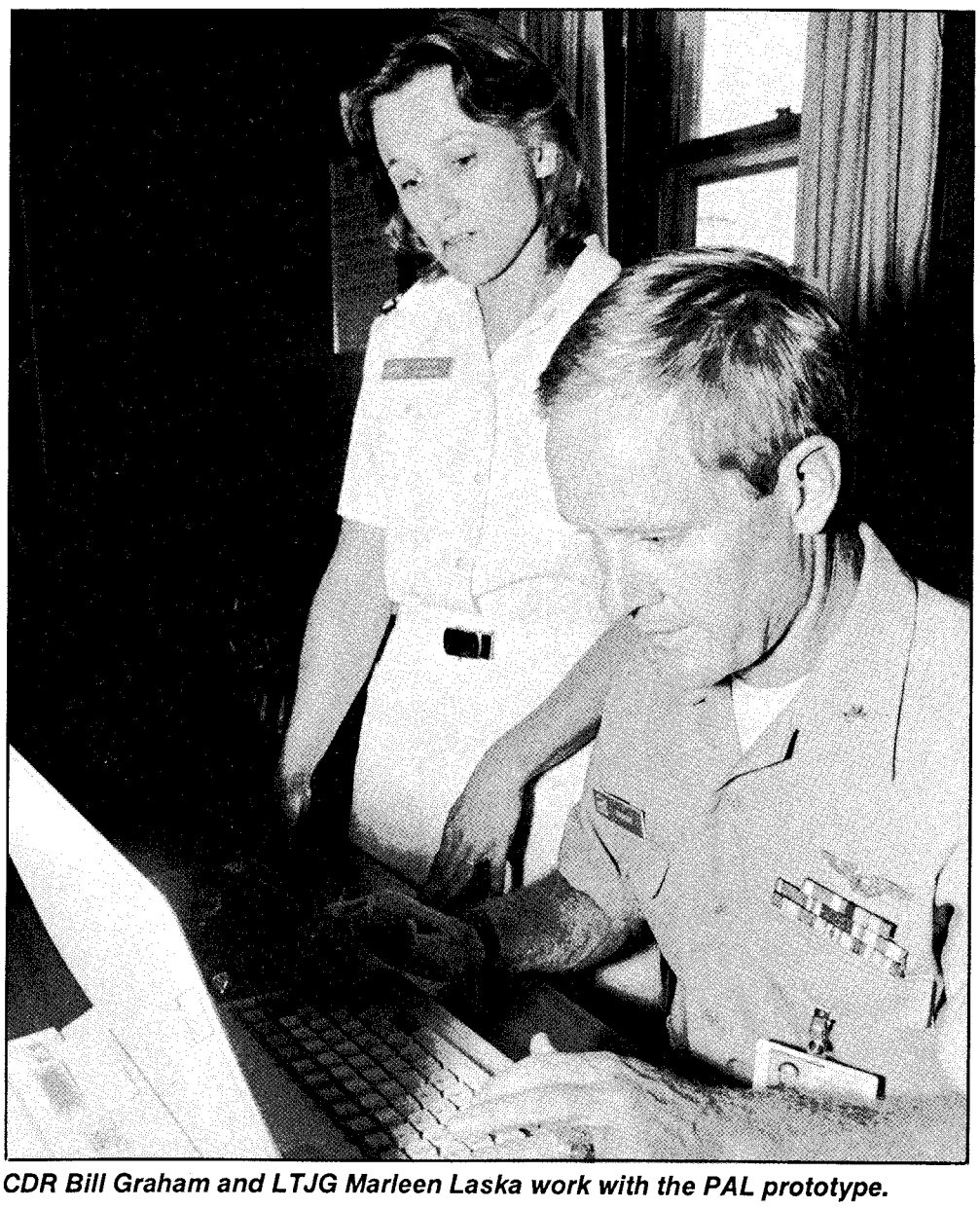
In response to this increasing demand for quality after school care, the NADC Shenandoah Woods Youth/Community Center began an after school program in 1989. Originally, it was put in place to support the military working men and women. "Due to an increased interest from the NADC civilian employees, we are now offering this program to their dependents," said Trea Kelly, Youth Center Director. "Our Youth Center is conveniently located next to the Center and parents need only call their school's transportation department to arrange a bus transfer for drop-off at the Youth Center," added Kelly.

The program is available from 3-6 pm, Monday through Friday. While it is offered when schools are closed or have early dismissal for in-service days, holidays and snow days, there is an additional charge. Children enrolled in the program must be ages 5 to 12. The cost is only $40 per month for the first child and then a sliding fee schedule goes into effect for each additional child from the same family.

Children are met at the Shenandoah Woods bus stop by a Youth Center staff member to be escorted to the building. There, the children enjoy games, arts and crafts, television, holiday parties and free play. A snack is provided every day and assistance with homework is available, if parents so desire.

Center employees with their children in this program can enjoy the convenience of picking up their children after work within minutes of leaving their workspace. For more information and registration, call the Youth Center at 1-7233.

Bettie Simpson-Lawrence hosted the planning meeting for the 1990-91 Bucks County Combined Federal Campaign (CFD). The attendees were: Bettie Simpson-Lawrence, Chairman, Local Federal Coordinating Committee (LFCC); Larkin Lake, 1990-91 Campaign Chairman; Florence Sperry, Director International Service Agencies; Aris Pasles, Member LFCC; Shirley Ertel, Executive Director, National Health Agencies; and Walter Derruotte, Director Resource Development, United Way of Bucks County. The 1990 CFC campaign began on October 9.



CDR Bill Graham and LTJG Marleen Laska work with the PAL prototype.

Portable ASW LAPTOP completes DEMVAL

By Marleen Laska

One of the Naval Reserve units supporting NADC, NR-NADC 0193, has finished the demonstration/evaluation (DEMVAL) phase of development for a P-3 Antisubmarine Warfare (ASW) Laptop (PAL) computer. This "carry on" computer and software will aid in the decision-making capability for ASW operations on reserve P-3 A/B aircraft.

The project was sponsored by NADC Human Factors engineers in Code 6022. They wanted to develop a decision-aid system that is applicable to the operation requirements of P-3 A/B crew station operators and to prove a laptop computer concept.

"Basically, we developed a software package that will run on Laptop," said CDR Bill Graham, project manager. "This will aid P-3 A/B crews in decision making," said CDR. Bill Graham, NR-NADC 0193, project manager. "The crews can load their entire mission into the computer before leaving the ground. By loading tiny bits of information into the computer, it will help the crew determine what type of submarine they are tracking."

"This allows the latest in software breakthroughs to get into the aircraft without any redesign of the airframe or the onboard computer system," Graham said. "The system is portable and the crew may take the Laptop to any airplane, the ASWOC (Antisubmarine Warfare Operations Center), or a trainer."

The LAPTOP decision-aid system was first demonstrated by Lockheed at NAS Willow Grove in 1987.

"The demonstration showed the appealing aspects of a graphic Laptop display," said LT Mike Holmes of Code 6022.

Using the PAL would offer P-3 A/B crews greater operational speed, increased accuracy and improved operator performance, according to Holmes.

Even though all P-3 flight crew members would be aided by the PAL, the PAL DEMVAL model concentrated on aids to the Tactical Coordinator and Acoustics Operators, since these members have the greatest volume of data and computations.

The project started as "an attempt to use new microsystems for applicability as a temporary inflight training capability for reserve ASW aircrews," said Graham.

"Even though the DEMVAL results were limited because of software delivery and classification problems, the DEMVAL proved a concept — carry on inflight decision-aids can help the ASW operations overall," he said.

"We need to take these results, improve the shortfalls and begin full-scale development of an inflight model. We are very grateful to NAS Willow Grove's VP squadrons for their support in testing PAL," Graham added. As the eventual beneficiaries of inflight decision-aids, the real-world testing and feedback provided by experienced flight crews working with a prototype software within PAL was developed by Analytics of Willow Grove and was hosted on Zenith's hardware. The PAL project is currently transitioning into a Patrol Avionices Decision Support System, under development by the NADC VP Program Office, Code 103, which is targeted for both forward-fit and retrofit into P-3's.

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PHUN PHYSIOLOGY
Sit-ups, leg lifts, strength, and washboard abdomens: a few surprises

By Jolie Bookspan, Ph.D.

This month two different but related questions came in that can be answered together.

Dear Phun Phys:

We sure do plenty of sit-ups to prepare for PFT's. What's the best way to target the abdominal muscles? How can we maximize strength?

'ETC Daugherty, BioMedical Support'

Dear Phun Phys:

In the weight trailer I saw a guy really going at the leg lifts. Is this the best way to strengthen the abdominals? What exercises will flatten the abdomen and how do you get a "washboard"?

'Mike in Magnetics'

Dear BioMed and Mike,

Sit-ups and leg lifts don't work the abdominal muscles. To understand why they're a poor choice for strengthening 'abs' and why they can hurt your back, here's a brief summary of everything you need to know about the muscles involved.

All muscles must cross a joint to move the bones on either side. A muscle anchors on one side of the joint at a site called its ***origin***. When a muscle contracts, it pulls the bone on the other side of the joint at its point of attachment called the ***insertion***. The insertion draws closer to the origin and the joint and bone move.

In the classic sit-up, you raise your trunk toward your leg by bending at the hip. With leg raises, you move the legs closer to the trunk, also by bending at the hip. When the angle between your trunk and thigh decreases it is called ***hip flexion***. The abdominal muscles do not cross the hip and so, cannot be used in hip flexion. If they were, you could work out your abdominals by the most frequent form of dynamic hip flexion — walking.

The muscles you feel working during those sit-ups or leg lifts are your ***hip flexors***, which lie deeper than the abdominals. The hip flexors cross the hip from the vertebral column to the leg (fig.1).

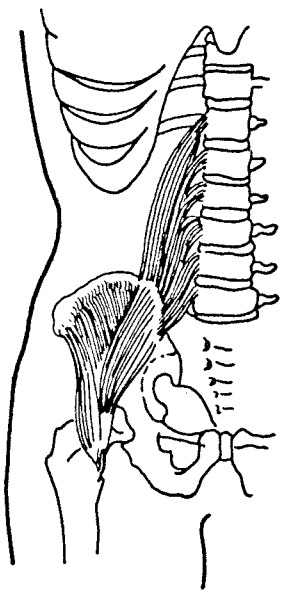


fig.1. Hip flexor diagram

The three major hip flexors are the iliacus, psoas (rhymes with 'Moe is', with a silent 'p') and rectus femorus. The iliacus and psoas are often considered together as the iliopsoas muscle because of their common origin and insertion. The iliopsoas is the 'filet mingon' muscle. Beef animals are prevented from exercising their hip flexors to make the muscle soft and fatty.

All three hip flexors originate on the lumbar spine. Leg lifts and classic sit-ups pull on the site of origin. The lumbar spine was not built to withstand such an onslaught and can become strained over time with constant repetitions (fig.2).

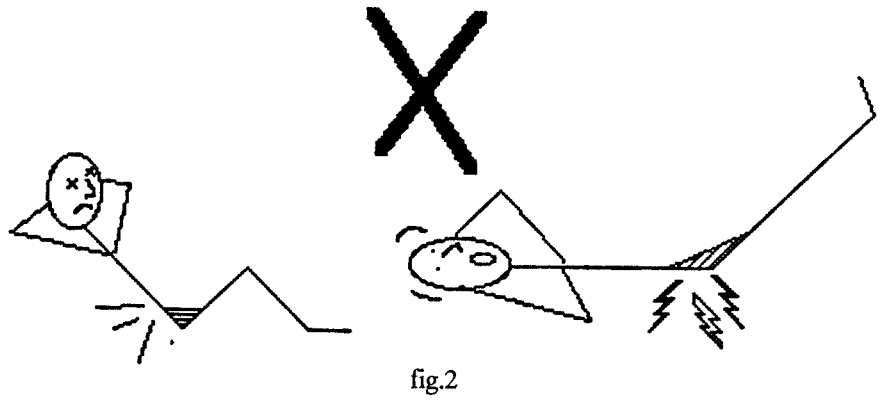


fig.2

Hip flexors indicated by stripes

So, where are the abdominal muscles and how do you work them? The major abdominal muscle is the rectus abdominus. It runs lengthwise down your trunk from the lower ribs to the anterior pelvic bone. It lies just under the skin, and varying thicknesses of subcutaneous fat (fig.3).

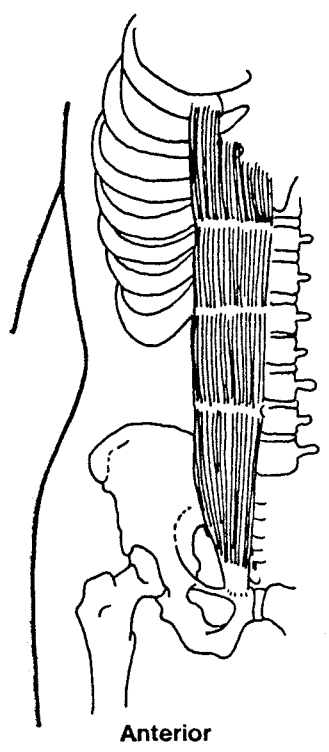


fig.3

The only work the rectus abdominus gets during the classic sit-up is to keep the trunk straight. But it contracts at only one length ***(isometrically)*** since the trunk does not flex for the majority of the trunk lift, which means that the muscle is not exercising over its range. It is used slightly at the end when you curl to touch your knees, but that is far too little to produce abdominal results.

The rectus abdominus (or 'abs') contract to produce trunk flexion. To work your abs, do trunk flexion, also called trunk curls or crunches.

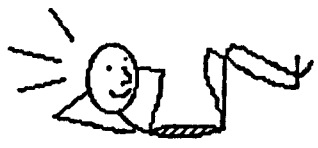


fig.4

How to strengthen your 'abs'? Strength and endurance are separate systems and respond to different training. To gain strength your muscles must contract at tensions close to their maximum, a concept called overloading. You need heavy resistance with few repetitions to overload a muscle. How heavy? A weight heavy enough that it can't be lifted or moved more than 8 times. If 8-10 crunches are your limit, then your body weight alone can increase strength. Do three sets of 8 crunches three times a week. If you can continue past 10 repetitions you'll increase endurance, not strength. Overload by using a slant board, and/or adding a weight to your chest.

Don't secure your feet under anything, since that brings the hip flexors back into play. Curl forward with your abdominal muscles, not your neck muscles. Clasp your hands on your chest or hold them beside your head, not behind or touching your head to avoid pulling your neck forward. Don't throw yourself forward with your arms, that's cheating.

To exercise the lateral abdominal muscles, the ***internal and external obliques***, twist toward either knee. Another variation on the trunk curl is to lie on your back, knees bent with your thighs close to your chest. Keep the back of your head on the floor resting on your hands. Bring your knees to your chin. When you can do that, a harder one is to lie on your back, flexed at the hip with both legs straight up. Contract your abdominal muscles to raise your hips from the floor.

So now you know trunk flexion, not hip flexion will work your abdominal muscles. But no spot exercise will flatten your abdomen. Aerobic exercise will reduce your body fat and subcutaneous thickness overall so that your muscles can be better seen.

With muscle hypertrophy (size increase) through strength work you can project the rectus abdominus between the bands of fibrous tissue called ***fascia*** that span its width at intervals. With that and sufficiently thin subcutaneous fat layer, the rectus abdominus will furnish the famous washboard tummy.

CFC: It pays when it stays

The 1990 Combined Federal Campaign drive will soon be in full swing at NADC. The CFC is a nationwide fund raising drive for human need programs. You can contribute to NADC Recreation Services Youth Center through a simple payroll deduction.

The Recreation Service Youth Center is the ONLY local federation at NADC with CFC approved status. This means that by allocating your donation to the Recreation Services Youth Center, your dollars will stay local and our Center employees' dependent children will benefit directly from your generosity.

The Youth Center, located in Shenandoah Woods, brings Youth Sports, holdiday parties, craft classes, clubs and dances, pre-school and after school programs (see article in this issue on these programs), summer day camp, monthly special events and much more. All Center employees — military and civilian — are authorized patrons of the Youth Center. Currently, both military and civilian dependents are utilizing the programs provided by the Youth Center.

At the time of publication, the CFC drive recipient numbers had not been designated. However, watch the Reflector for further information on how you can keep your dollars local and contribute to a cause right here at NADC. Facing further government budget cutbacks, the Youth Center depends on fund-raising campaigns like CFC to ensure the continued availability of quality educational and recreational programs.

Cotilla

Cont'd from Page 1

"The panel meets annually and deals with many other matters in addition to interoperability. We exchange new ideas and appraise each other of new developments," said Cotilla. "This December, we'll host the panel. We'll have three days of technical presentations and two of business meetings. We'll plan collaborative exercises and identify tasks for each country between meetings.

Sharing resources save all the nations money. One nation may provide buoys, one a ship and one personnel and all share the results.

"This year, we are concerned with ambient noise measurements at low frequencies. We also have tasking from our parent subgroup to look at operations in shallow water and present capabilities and recommendations," said Cotilla.

The intent of TTCP is to provide adequate defense research and development by assisting member nations by sharing resources and tasks in many fields, particularly where some are weak so security can be found for all.

TTCP provides a means to acquaint member countries with each other's defense research and developments. As a result, each nation's Research and Development programs can supplement the others and avoid duplication. This also promotes concerted actions to close collective technology base gaps.

The Non-Atomic Military Research and Development (NÁMRAD) subcommittee of the TTCP presents the awards and summarizes achievements, subject to security considerations.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Center Personnel compete in Fall distance run

Fred Pappalardi, Marge Steenhoff and John Auerbach celebrate race completion.

By Fred Pappalardi

Among the approximately 7500 men and women who competed in the thirteenth running of the Philadelphia Distance Run, held on 16 September, were ten NADC personnel and one on-site contractor. The NADC runners, all of whom finished, were: Sue Coyle (20/02), Marge Steenhoff (4001P), Vida Komer (201), Larry Hart (5051), Bob Polaneczky (1032), Roger Furlin (054), Joe Madden (8455), Paul Prichard (5023) and John Auerbach and Fred Pappalardi (4031).

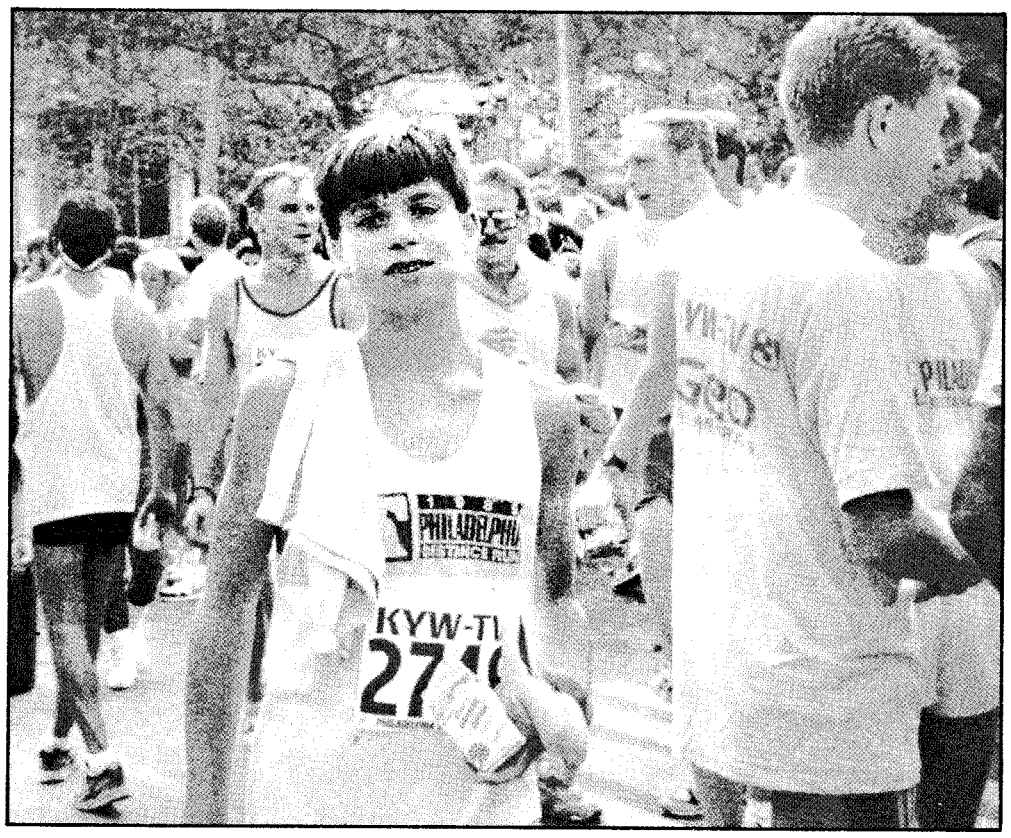
Both Larry Hart and Bob Polaneczky have competed in all thirteen Distance Runs. They are among only sixty-eight runners who share this distinction. Pat Glover, an on-site contractor also completed the run. This was Pat's seventh time running this race.

One of the younger entrants was Dan DiPasquo, 14, son of Micaela DiPasquo (103). Dan's time for the race was an impressive (to us older runners) 1 hour, 27 minutes, twenty-eight minutes under his time last year.

"This was my second Distance Run and unlike last year, the weather was perfect," said Marge Steenhoff. "What made this run so enjoyable for me was that I ran it with friends. In fact, Fred, Sue, Vida and I ran together and finished within seconds of each other."

"We're quite fortunate, here at NADC, where we have flex time and can run during non-core hours and where Center management encourages and supports regular exercise of this type. It's the only way many of us were able to train for this race," said Vida Komer.

The Philadelphia Distance Run (13.1 miles) is considered to be the fastest and one of the best and most scenic half-marathons in the world, attracting some of the world's finest runners. This year's overall winner was Mexico's Dionicio Ceron who ran the course in a record breaking 1 hour, 46 seconds.



Dan DiPaqsqua, 14, son of Micaela DiPasqua, Code 103, waits to cool down before eating post race lunch.

Big Mac is attached on racquet ball court

By Heather O'Rourke

It came as no surprise to the ten-player field that Donnell "Mac" McClerklin took first place in the MWR Racquetball Ladder Tournament. After keeping a virtual lock on the top rung of the ladder for the 8-week tourney, McClerklin advanced unscathed through the double elimination bracket to take first place on September 28.

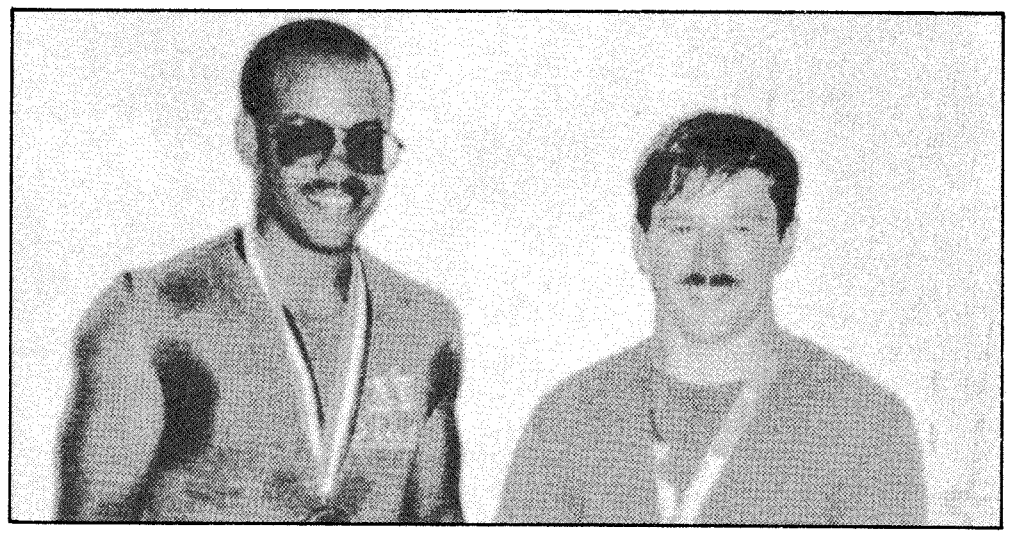
"He's so smooth, it's almost ugly!" remarked Mike Delledonne, after watching McClerklin. "He glides on the court – he's exactly where he wants to be every shot." Mac's expertise on the court comes after four years of steady playing. "I like it," he said, "And, something you like, you put your best into." In addition to winning the last NADC tournament, Mac has wins under his belt from Lakehurst, and several tourneys in Rota, Spain. "The competition here (at NADC) is improving," he commented, "Although I'd like to see more guys in the tournament."

McClerklin, a PR-2 in Code 92, eliminated ADSC Bob Morsdorf, from Code 90, in the final match, scores 15-13, 0 (Morsdorf) and 11-1. Morsdorf, no rookie to the raquetball court, has been playing on and off for ten years. This was his first tournament here at NADC.

"The level of competition here is good," Morsdorf remarked in between matches. "But, there are a lot of players on the base — more need to get involved." Morsdorf has won several contests at Brunswick, Maine and has taken second a couple of times as well.

Morsdorf advanced into the finals by beating Pat Breaux, a retired military currently working at Code 044. Pat was impressed by the competition and said, "It's good (the competition). I got beat!"

Taking fourth place was JO2 Mike Delledonne from Code 041. Delledonne took second in the last NADC tournament and commented that the competition in this event was much better. "Probably there are three of us who are fairly equal — you could flip a coin. There hasn't been an easy game by far," he said, before the tourney ended on Friday.



Mac McClarklin took first place in the MWR Racquetball Tournament and Bob Morsdorf finished second.

NADC mixed bowling news

Bowlers having a ball

By Tom Reiter

Each Wednesday for the last month, many of your fellow employees have been diligently honing their bowling skills. The rest of us have just been having fun. As of this date, the **Lucky Strikes**, captained by **Peg Clark**, Code 30C are leading the A Division with 17.5 wins and 2.5 losses while the **Nine Pins**, captained by the intrepid **Jim Campana**, Code 5052 are first in the B Division with 16 wins and 4 losses. The women are giving the men a run for their money in outstanding performances. **Dave Oliver** threw a dazzling 233 while **JoAnn Coughlan** is closing in with a high game of 216 in A Division competition. The A Division has two great high average bowlers in **Joe Emperly** with a 172 and **Ms. Terri Grau** with a 179. There are no slackers in the B Division either. **Jack Horning** has thrown a high game of 229 while **Kathy Sedlock** has tossed the league high 246 (on her very first night with the league). The B Division's two high average bowlers are **Al Knobloch**, 179 and **Linda Stickney**, 172.

All is going well, except we are still looking for one more team to join our league. Anyone with 6 or 7 friends who want to join us for fun on Wednesday nights at 6 p.m. is welcome to join us. Call Lorrie Wallace, x 3626 any time.

NADC

Reflector

Volume 35 Number 11 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. November 1990

IN THIS ISSUE
-CODT Awards
-Smart Skins
-Carreras Award
-Cholesterol Information
-Ski Club

Nine receive Commander and Technical Director Awards

Winners of the Center Commander and Technical Director 1990 Awards stand between center commander, Capt. Curtis J. Winters and Technical Director, Guy Dilworth. The winners are (L. to R.) Thomas A. Kircher, Carol L. Taylor, Wesley F. Mostello, Michael J. Saitta, A. Jerome McGlynn, Dr. James E. Winnery, Annmarie Burke, Michael R. Hess, and ADC Richard D. Henshaw.

By Lawrence L. Lyrord

Nine outstanding center employees were honored as Captain Curtis J. Winters, NADC Commander, and Guy C. Dilworth, Technical Director, presented them with the 1990 Naval Air Development Center Commander and Technical Director Awards. In addition to the professional recognition, each winner received a check for $3,000. The awards also provided personal recognition to the individuals and for their major technical achievements or support for the Center. In addition, they also represent the contribution of many others who are part of the NADC team.

The families of the winners had been notified in advance so they could make arrangements to be present. To maintain surprise, they met in Building 1 and were transported to the ceremony site to sit in a reserved back row section just before the ceremony began.

The winners were:

Thomas A. Kircher — Junior Professional Award;

Dr. James E. Whinnery — Scientific Achievement Award;

Mr. Wesley F. Mostello — Technical Support Achievement Award;

Carol L. Taylor — EEO Program Support Award;

Annmarie Burke — Administrative Support Award;

Michael R. Hess — Engineering Achievement Award;

A. Jerome McGlynn — Annalysis/Analytical Achievement Award;

ADC Richard D. Henshaw, USN — Aviation Support Award;

Michael J. Saitta — Project Leadership Award.

The Junior Professional Award was presented to **Thomas Kircher** for his research in high temperature materials behavior in the marine environment. This research is and will continue to impact performance of propulsion systems for naval aviation. His work in the industrial research laboratories, universities and NADEP toward developing new alloys and coatings minimizing the effects of sulfur on superalloy behavior in the naval environment. This was further enhanced by his research programs involving hydrogen and boron.

The Scientific Achievement Award went to **Dr. James E. Whinnery**. As the Center's chief aeromedical scientist, Whinnery's research has contributed significantly to understanding basic physiological processes underlying G-induced loss of consciousness and to the design of equipment and training procedures to enhance aircrew tolerance to rapid high-G onset rates. His innovativeness, creativity and technical acumen have contributed greatly to advancing basic scientific knowledge and Center mission. He has been selected as a member of the Naval Advisory Council to define research requirements for aviator physical stress.

The Technical Support Achievement Award was presented to **Wesley**

See OUTSTANDING Page 6

Dave Morris, Code 4022, explains Inertial Navigation Lab equipment to Rear Admiral Robert H. Ailes, on his first visit, as Capt. C. J. Winters and Louis A. Naglak, Code 40, listen.

Admiral Ailes visits NADC

Rear Admiral Robert H. Ailes assumed his position as Commander, Space and Naval Warfare Systems Command, in September 1990, relieving RADM. John C. Weaver and recently visited this Center.

Born in San Francisco, California, Admiral Ailes attended the United States Naval Academy, graduating and being commissioned on 7 June 1957.

His sea assignments include duty as CIC Officer on the USS WILLARD KEITH (DD 775), as Operations Officer of the USS CONYNGHAM (DDG 17) and Commanding Officer of the USS HAMMERBURG (DE 1015) and USS VIRGINIA (CGN 38) in the U.S. Atlantic Fleet; Executive Officer of the USS LONG BEACH (CGN 9) and USS SOMERS (DDG 34), and Commanding Officer of the USS BROOKE (FFG 1) in the U.S. Pacific Fleet. In addition, Admiral Ailes served as Operations Officer on the Staff of Destroyer-Division 222.

Shore assignments include postgraduate education at the Naval Postgraduate School in Monterey, California, where he received a masters degree in Operations Analysis; Nuclear Engineering Training at Bainbridge, Maryland, and West Milton, New York; duty as Commanding Officer and Director of the Officer Department of the U.S. Naval Nuclear Power School at Mare Island, California; duty in Washington as the Director of the Naval Forces Divisionin the Office of the Assistant Secretary of Defense for Systems Analysis, Director of the Anti-Air Warfare Division in the Office of the Director for Naval Warfare, Director, Surface Combat Systems Division in the Office of the Deputy Chief of Naval Operations for Surface Warfare, and Deputy Commander for Weapons and Combat Systems of the Naval Sea Systems Command.

Many are involved

Smart Skins efforts at NADC advance

By Lawrence L. Lyford

There are several efforts ongoing at NADC which address the application of advanced sensory fuctions to aircraft systems.

The Smart Skin Concept embodies a variety of engineering disciplines integrating sensor technology, the processing of information from sensor fields and the application of the information obtained into auxillary systems that support the aircraft and its mission tasks.

The fields of Sensor Technology, Smart Skins and Smart Structures are relatively new and evolving technologies requiring a multidisciplinary approach for their successful implementation into DOD military systems. The diverse expertise employed in the research efforts at NADC, has made the center a major contender in this field, providing meaningful and productive contributions in this emerging technology.

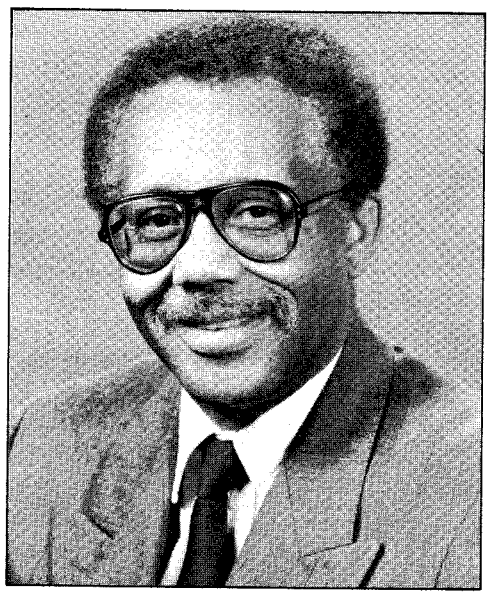
The advanced fiber optic sensor development effort, at NADC has been spearheaded by Dr. Lloyd Bobb, Code 5012. Dr. Bobbs interest is to develop fiber sensors pertaining to acoustic and magnetic applications. His most recent developement, an optical fiber gradiometer, uses fiber optic principles to measure magnetic field intensities in two different locations (see last issue.)

Dr. Bobb also developed a tapered fiber optic sensor device. The device produces an output porportional to the amount of mechanical bend introduced in a fiber. It can determine stress in a material and measure temperature in an air flow. Recently he developed an ultra sensitive pressure gauge detecting air pressure changes across a two foot height.

See EFFORTS Page 5

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Letters to the Editor

TO THE EDITOR

When the Center designated "smoking" and "non-smoking" areas I was thrilled.

The program worked for a time. Now, I see people walking through the halls with cigarette passing right through non-smoking areas. Women are now smoking in the ladies room even though a No Smoking sign appears outside of the door.

There are also numerous offices where people are still smoking.

If the smokers don't obey the rules, why not stop selling cigarettes at the machines and at the cafe.

Isn't there any way that the Center could enforce the rules!!!

Name Withheld

When I travel to other government facilities and commercial companies I often review their smoking regulations. Most facilities have equal or more restrictive rules on smoking than this Center. The reason for this overall increased prohibition on smoking is recent research showing that passive (second-hand) tobacco smoke is now the third leading cause of preventable death, behind smoking and alcohol.

In the past year there have been complaints of so called old building syndrome in some areas of the Center. Air sampling and testing did not reveal a high dust level. What was found was that the existing particulate level probably could be reduced by further restricting smoking.

In addition to the health dangers to smokers and non-smokers, we also have an appearance problem caused by the few who insist on putting out cigarettes on the floor of our hallways.

Therefore, one of my safety and health objectives is to reduce smoking on Center. To do this, I begin at the personal level, I encourage all of our remaining smokers to participate in the Great American Smoke Out on November 15. Give up those cigarettes for just one day, and then take it one day at a time after that. Non-smokers should do whatever they can to help smokers stay smoke free after that.

To help, the Center will offer "Fresh Start" smoking cessation classes beginning on November 15th. These sessions are accredited by the American Cancer Society and will be given at no cost during the workday. If you have wanted to quit, but need a little help or can't afford the time or expense involved in a smoking cessation program, this is a perfect opportunity. Call Mike Markle, Code 031, x3607 who will be happy to explain the details.

The problem of smokers not obeying the rules should be addressed directly. Making it harder to buy cigarettes may help but won't solve the problem. Expanding the non-smoking policy to include the entire Center (as others have suggested) expands the area where the rules can be violated. It, too, fails to address the problem directly but could be part of an expanded policy. What is needed is compliance with existing NAVAIRDEVCENINST 5100.34A which permits smoking in only limited areas.

The issue is enforcement or lack thereof. Violations of non-smoking policy should not be viewed any differently from violation of other rules of employment.

Employees, visitors and contractors are expected to abide by and enforce the *present* smoking restriction rules. Each employee is responsible to a supervisor for every action while on this Center. I still encounter individual smokers who are unaware of the regulations and the Center's designated smoking areas. In most cases, a short reminder will suffice to stop the violation.

To those knowingly breaking the present rules, I know of no institution which has established a complete smoking ban and reversed itself. It is to your convenience to abide by present rules rather than require imposition of more restrictive ones.

C. J. Winters

Commander Salutes

Guy C. Dilworth, (Code 01); CDR Peter L. Kallin, (Code 30A); Dr. Richard D. Bromberger, (Code 30D); Robert J. Zaleski, (Code 30D): For the exceptional effort expended to host RADM Maughlin, RADM Flagg and C. Scott Boyd, COMNAVAIRLANT.

ENS Lisa Truesdale, (Code 042); For your presentation to the St. John of the Cross Eighth Grade Class.

Thomas Battle, (Code 051); Otis Johnson, (Code 051): For the outstanding support and assistance you devoted to the training of NCSC computer operators.

Anthony E. Mickus, (Code 30B); Larry Buchsbaum, (Code 30B); Carla S. Mackey, (Code3021); Jeanne S. Kita, (Code 3022); Paul L. Poore, (Code 3021); Pascual A. Spensieri, (Code 3022); William R. Bogdan, (Code 303); Carl W. VanWyk, (Code 3031); Paul R. Bumgardner, (Code 3032): For the dedicated work you have done on Warfare Systems Analysis and Engineering. Your support has contributed to the success of Battle Force Architecture development and assessment.

LCDR Neal P. Hesser, (Code 40L); Kevin Cowley, (Code 4023); Steven Ganop, (Code 4023); William Klopfer, (Code 4023); Michael Rose, (Code 4025); George Virgulti, (Code 4023); LCDR Cornell, (Code 91); LT Matthew J. Gubenski, (Code 911); LT Fred W. Martin, (Code 9204): For the outstanding service you provided to the USNS VANGUARD in the the loading, storage and delivery of classified material is truly commendable.

Barbara Kempf, (Code 6001): For all the time and effort you put forth to make the Granville Academy Summer Job Program a success.

Richard Dietrich, (Code 6011): For the outstanding job you did on the T-39A aircraft modification for the Air Force's Space Systems Division.

Susan Smith, (Code 6012): For the outstanding assistance you provided as a member of the X-31A team.

Brandon Johnson, (Code 60337): For receiving the Battlefield Laser Management Panel's (BLIMP) Gold Medal Award.

Doris Bessler, (Code 7013); Arlene Richman, (Code 7013); Fred Shocket, (Code 7013): For your execptional performance in supporting the Tactical Aircraft Mission Planning System acquisition effort.

Letter to the Editor:

Dear Editor:

Why is it that spaces can be designated on Center for smoking, but not for Aerobic or Karate classes? For seven years, we who care about our health have been nomads...going from place to place looking for available space in which to exercise. When the Wellness Program came about, we felt that our problem was going to be solved. But instead, it was left unaddressed.

At the present, we're holding classes in the old Crash House across the street, but there's no guarantee how long this space will remain available. Winter is coming and along with it bad weather, which is another inconvenience.

It is a proven fact that exercise makes a person feel better and improves productivity. Being able to exercise during lunch time is conveneient and provides more energy to get work done in the afternoon. If work morale is important and has a top priority, then so should provisions which can bring this about. Perhaps our PUFFING priorities should be re-evaluated.

Debra Chaffin

Dear Debra:

The Center is greatly concerned with the health and morale of its employees as evidenced by the many programs offered by Employee Relations, including the Wellness Program. The Center discourages smoking, but has designated smoking areas—primarily corridors and aisle ways—in an attempt to isolate non-smokers from those who have been unable to kick the habit. These designated areas in no way affect the space required for the Center to accomplish its mission. If one of the designated smoking areas would meet your needs, please contact the Center Space Committee at extension 1016.

The problem of providing space for the Aerobics and Karate classes has not gone unaddressed. Employee Relations and the Aerobics and Karate groups have contacted the Center Space Committee on numerous occasions to determine the availablity of space. The crux of the matter, is: space availability. The committee has either found the temporary space, as in the case with the old Crash House, or approved the use of space found by group members.

The committee is constantly receiving requests for additional space from the technical departments to accommo-

See ANSWER Page 8

NADC Reflector

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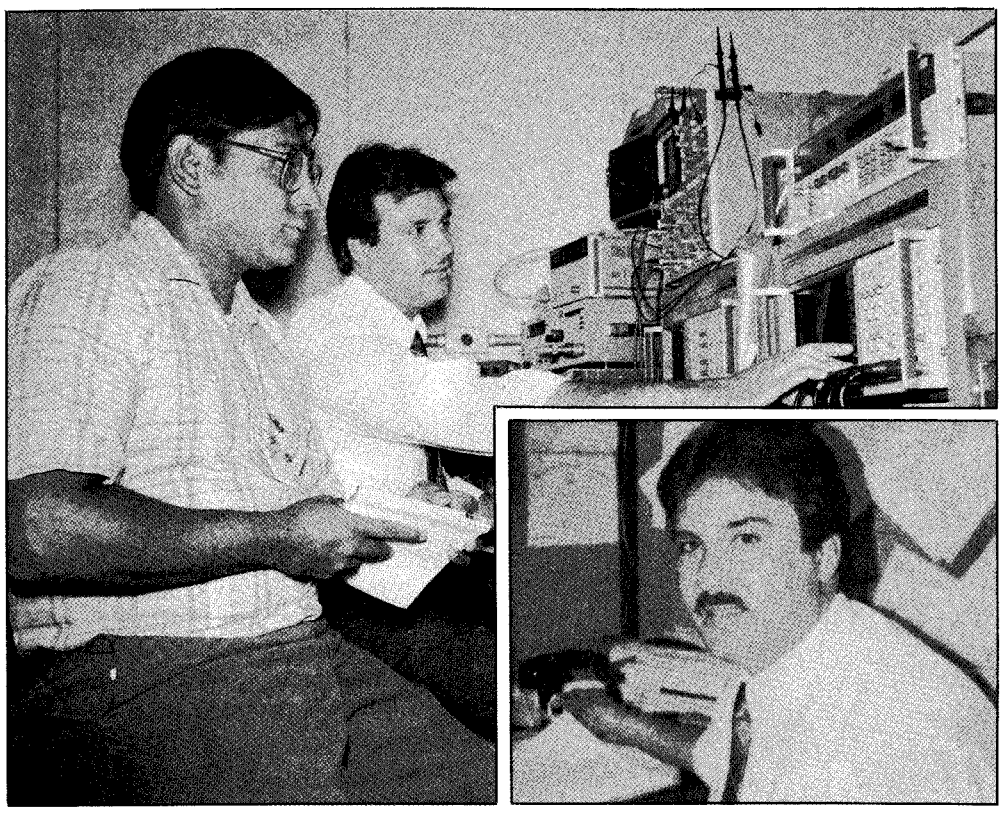


Carreras pictured with Tamaso Castro has varied duties.

Federal Executive Board Recognition

Carreras receives Hispanic employment award

By Lawrence L. Lyford

Angel Carreras, Jr. received one of three 1990 Hispanic Employment Program Achievement Awards presented by the Federal Executive Board's Hispanic Employment Program Council (HEP) at a luncheon held at the Defense Support Personnel Center, Philadelphia.

Carreras, an electronics engineer in the Surveillance Radar Branch, Code 5022, was recognized for his lead role in his department's adoption of the University of Puerto Rico as part of the Center's Adopt-A-College Program according to Rosa M. Cerankowski, Chairperson of the Philadelphia area HEP Council.

As part of his work for this program, Carreras twice visited the University of Puerto Rico to recruit employees. He collected resumes, conducted interviews and provided information about NADC. He ensured potential hires were invited to the Center for personal interviews.

"My goal always has been to recruit the highest quality Hispanic engineering students. I want those who can represent the Hispanic community's engineering talent. I don't want anyone hired mostly to meet a quota. We need the best here," said Carreras.

During the months preceding these interviews, Carreras frequently telephoned the school, faculty, students, and the students' families. He matched student resumes with selected labs, arranged interview appointments and acted as their personal guide from the time they arrived at the Center to the time they departed.

He even worked late one evening to reschedule return reservations mistakenly cancelled during a holiday with a major airline strike. He worked to insure the affected students could take their final exams on schedule.

As a result of Carreras' recruitment efforts, two students, Victor Colon, Code 5011, and Hasan Elmusa, Code 5022, became summer hires and permanent, full-time engineering employees. "Carreras gave them outstanding mentor support on his own time. His family provided housing for them and provided transportation to and from work. Upon graduation, they were given assignments in Carreras' department. He has continued to mentor them and provided housing for the past eight months. He also helped them with car insurance, tax information, and even street directions," said Cerankowski.

Presently, Carreras is Chairman of the Mentor Sub-Committee of the Center's Hispanic Program Committee and the program has two new engineers who are active members of the Hispanic Program Committee.

Carreras has helped Historically Black and Hispanic Colleges such as the University of Puerto Rico, University of New Mexico, and University of Texas at El Paso understand NADC opportunities and requirements.

Carreras' efforts to develop a permanent relationship between our Center and the University of Puerto Rico at Mayaguez, and his mentoring is a timely contribution to the Department of Navy's five-point program to increase our Hispanic representation to 5%.

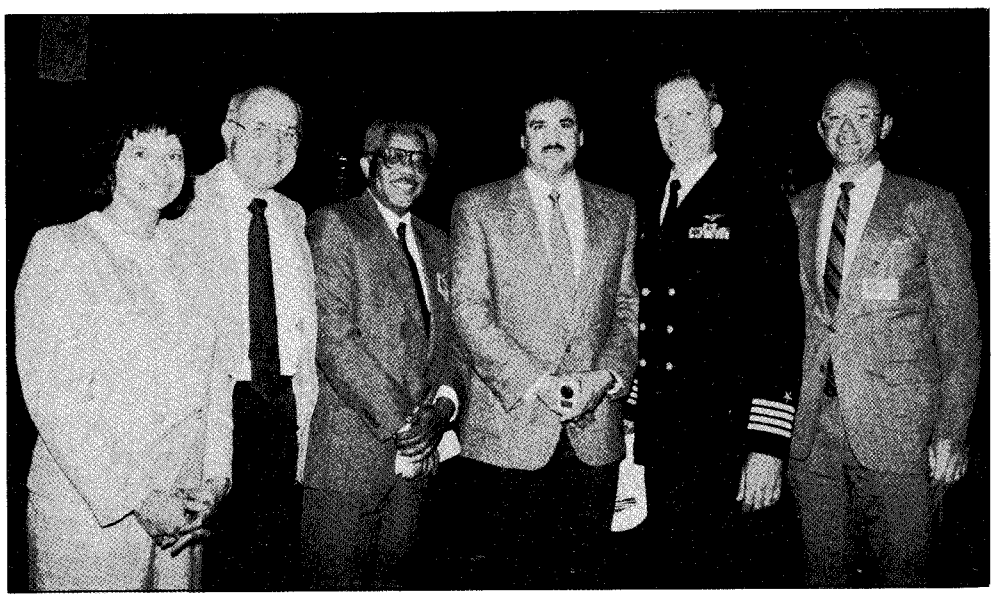
"In the past six years, we have doubled our number of Hispanic Scientists and Engineers as well as the total number of our Hispanic employees. We still have a lot of progress to make, but with efforts such as those of Angel Carreras we will be able to continue and improve on this growth," said Cerankowski. The Center's aggressive and successful pursuit to recruit and retain Hispanics can serve as a model for other Navy activities.

Carreras' has been recommended for recognition by the Hispanic Engineer National Achievement Awards Selection Committee. He also has been nominated by his department for this Center's Commander/Technical Director EEO Award.

Since his graduation from Widner University Carreras has worked on radar evaluation and subsystem development. He has been a flight test team member on the Synthetic Aperture Radar (SAR) program in charge of hardware configuration control and operational frequency assignment. He developed specification for components and subassemblies to implement wideband, solid-state transmit/receive modules. Presently, he is completing a masters degree at Penn State and planning more mentoring.

Captain C. J. Winters, the NADC Commander, Guy C. Dilworth, the Technical Director, Frank Drummond, head of the contracting division, Rosa M. Cerankowski, Chairperson of the Philadelphia area HEP Council as well as an NADC contracting officer and Kathy Gause, the Deputy EEO Officer, attended with several others from the center.

Established in 1970, the program provides attention to the Hispanic employment needs in the federal government. This year's award ceremony was attended by 350 people and the heads of 30 regional federal activities. Money raised from ticket sales (in excess of the program cost) was matched by the League of United Latin American Citizens (LULAC) and presented to two Hispanic high school seniors as $540 academic scholarships.



Carreras is honored in ceremonies in Philadelphia.

PLAN IT FOR THE PLANET

By MICHAEL BLANK, P.E.

Since a series of unexpected events unfolded in the Middle East in August 1990, the world's oil supply is once again threatened by Iraq's invasion and occupation of Kuwait. As a result of this action the cost of energy increased dramatically and has made all of us aware of the economic importance of Energy Management and Energy Awareness.

From 22 through 26 October 1990, the Center observed the thirteenth annual Energy Awareness Week. The theme for Energy Awareness Week is "Plan It For the Planet" and its primary objective of Energy Awareness Week was to involve and motivate people to become aware of energy issues, problems and solutions. To promote Energy Awareness among Center employees and contractors the Center video system showed, videotapes on different energy conservation programs and various projects completed at the Center in fiscal years 1985 through 1989.

Wealso showed various videos concerning energy awareness and opportunities produced by the State of Pennsylvania Energy Office.

Recently, the Department of Energy started a nationwide campaign to provide specific steps for energy conservation. This adffected the transportation sector, where 63 percent of the petroleum is consumed in this country.

By issuing an executive order, President Bush is directing federal agencies to increase energy efficiency in new construction and existing installations.. "President Bush has called upon Americans to join in this effort and conserve energy... Our intention is to give people clear concise steps they can take immediately and have a direct impact on oil consumption and fuel savings", said Admiral Watkins, Secretary of The Department of Energy.

Five specific measures for reducing our oil consumption are:

1. **Maintain Proper Tire Pressure.** This would save over 2 million gallons of gasoline daily.
2. **Do the Speed Limit.** This would save another 2 million gallons of gas a day.
3. **Increase Use of Car and Van Pools and Mass transit.** A 5 percent increase in the use of car pools or mass transit would save almost 4 million gallons of gas a day.
4. **Use the Right Octane.** Eighty percent of today's cars will run on regular octane. Using the octane recommended for your car would save almost three million gallons daily.
5. **Use the More Efficient Car.** Half of the homes in the U.S. have two cars. Using the more efficient one when you have a choice would save 1.5 million gallons daily.

"Americans can breathe better by driving smarter," said Mike Deland, White House Environmental Adviser. "Together, by following these simple steps, we can cut smog and acid rain and cut our dependence on foreign oil."

"Louie" served everyone.

Everyone had all they could eat.

November is BEEF month at the Crews Rest Club

By Heather O'Rourke

Going on the premise that, given the opportunity to eat all they can, most people will make pigs of themselves, MWR will continue "All-You-Can-Eat" Thursdays. November will feature as much as you can consume hot roast beef sandwiches with all the fixings, potato and macaroni salad for only $9.95 per person, in advance. (There will be no service on Thursday, Nov. 22 Thanksgiving Day)

Tickets are on sale at the Club Bar and from the Manager. Flyers have also been distributed with ticket order forms attached. Thirty tickets must be sold on the preceeding Tuesday to hold the event that Thursday. Then, limited tickets will be available at the door for $12.95 per person.

For more information, call the Club at X7651.

IF THE SOC FITS

By Robert Janes, General Counsel

In an interesting case involving the Standards of Conduct (SOC), a Federal Circuit Court of Appeals recently upheld the firing of a senior government employee for SOC violations. The employee, Carl Baker, was a GM-15 Supervisory Computer Specialist with 29 years of experience at the Social Security Administration (SSA). The violations occurred at a time when he was serving as a member of a 5-person technical review committee assigned to evaluate the technical proposals of five companies being considered for a large SSA technical support services contract. Shortly before the review committee conducted its evaluation, Baker went out to lunch with his former supervisor, Jack Wicklein, who had gone to work for a company named RGI. Several days before the luncheon, Wicklein had asked Baker whether Richard Quigg, President of RGI, could join them. Baker had agreed, although with some reluctance, since he knew that RGI was a proposed subcontractor for one of the five companies under consideration for the contract.

At the lunch, Quigg asked Baker how he would rate the five firms that were in the running for the contract. Baker responded by rating the companies in numerical order, #1 through #5. A company named Washington Data Systems was rated #1, and the company for which RGI was a proposed subcontractor was rated #2, which prompted Quigg to ask how Baker could make it #1. Baker became offended, and after some further discussion, declared that he was leaving. He offered to pay the bill, but Wicklein and Quigg said they would take care of it.

Roughly three weeks later, when Washington Data Systems was announced as the proposed awardee, Wicklein told Baker that Quigg was considering protesting the award on the grounds that Baker had expressed his preference for Washington Data Systems at the luncheon before the technical evaluation had been completed. This apparently prompted Baker to advise his superiors of the lunch. SSA then decided to cancel the solicitation without any award having been made. Shortly thereafter, Baker was fired, on the dual grounds of accepting a gratuitous meal, and divulging confidential procurement information.

Notwithstanding Baker's seniority, the court considered his offense a serious one and upheld his removal. It noted that he was in a supervisory position within his agency and, as such, was responsible for enforcing the SOC among his subordinates. The court found that he "abused the trust reposed in him [by giving] a potential subcontractor an unfair opportunity to foreclose other participants from obtaining a government contract. "It is interesting to note that Baker was not charged with giving out proposed prices or technical scores, but merely his assessment of the relative standing of offerors, yet this was deemed sufficiently serious to warrant his removal.

It could be better than first

Fashion Show opens season

By Heather O'Rouke

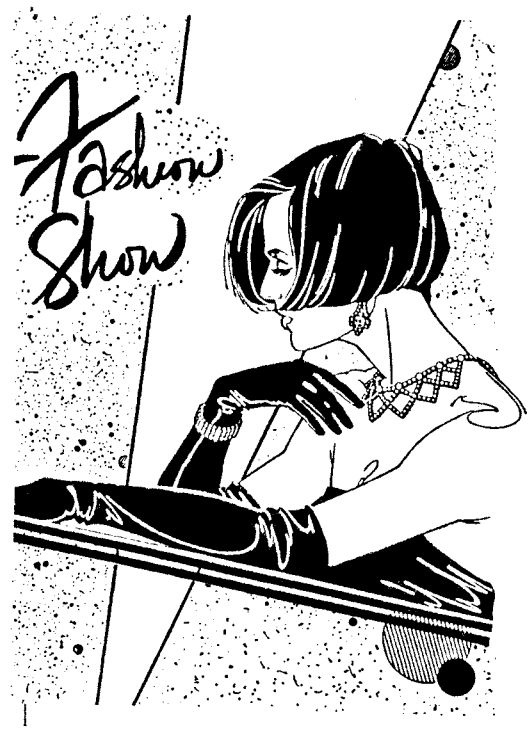
You've probably been told that if you missed the August Fashion Show, you missed a lot! Morale, Welfare and Recreation, Code 045, is pleased to give you the opportunity to experience another fashion event with the Holiday Fashion Show scheduled for November 30. The August event is a hard act to follow, but MWR has put together a line-up of sponsors and models that will top our last effort!

Clothing will be provided by Lancaster Dress Co., Inc. of Willow Grove, Necessary Accessories Inc. Fashion Boutique of Warminster, Formal Affairs Tuxedos of Hatboro, and the NADC Navy Exchange. Sponsors include Mary Kay Cosmetics, Creative Cuts of Warminster, Sir Speedy of Warminster, Sato Travel, and Matt Arner & Music Machines Inc. Guests will again enjoy round trip shuttle transportation from the Credit Union entrance to the Crews Rest Club, an appreciation gift, a special holiday luncheon and a chance to win numerous door prizes donated by the sponsors.

MWR feels sure you will applaud this line-up of models: Rob Long, Dotty Harner, Howard Worley, Caroline Cobb, Mike O'Rourke, Johnna Cummings, Joe Valentino, Margaret Vigelis, Gary Mandeville, Carole Preston, Tom Eichstaedt, Belinda Hamilton, Joe Zarzaca, Debra Chaffin, Dan Murphy, Beth Mumford, Winston Scott, Terry Reiss, Dennis Hargis and T.J. Dudley.

Tickets for the event went on sale October 23, at the Public Affairs Office x3444 and MWR x2510 for $10 per person. A limit of 130 tickets will be available. (This number was sold-out 10 days prior to the August show, so early purchase is advised.)

MWR will be pleased to reserve special tables for groups with 12 or more guests. For more information and reservations contact Heather O'Rourke at x2510.



MWR Kicks-Off Football Season

By Heather O'Rouke

NADC Morale, Welfare and Recreation and NAS Willow Grove will cosponsor a Punt, Pass and Kick football competition for all military and civilian employee dependent boys and girls on Sunday, Nov. 11 from 1-4 pm at NAS Willow Grove.

Boys and Girls between the ages of 5 and 15 can display their skill and accuracy in throwing and kicking the football on the Willow Grove field across from the Navy Exchange. The top finishers in the designated age divisions will receive awards and refreshments will be provided on the sidelines. A fee of $3 per child will be charged.

Bus transportation will be available (minimum of 18, maximium of 40 children) from the NADC Shenandoah Woods Youth Center to NAS Willow Grove. Advance registration is mandatory prior to November 8. For more information, call the MWR Recreation Division at X2510.

United Negro College Fund telethon to be held

The Black Interest Group (BIG) requests volunteers to represent NADC in support of the 1990 UNCF telethon. The telethon will be broadcast on Channel 29 (WTXF) from the Adams Mark Hotel, on December 29, from 6p.m. to 1 a.m. For additional information please contact Maureen Sullivan at x3550.

Security Reminder

Missing/Lost/Stolen Government Property. Any person at this Center who knows government-owned property is missing, lost or stolen shall immediately telephone the Internal Missing Property Coordinator, IMPR, extension 3305. A report should be made when the item is discovered not to be in its usual place. DO NOT WAIT HOURS OR DAYS while you query coworkers because some people are on travel or leave status. Don't wait indefinitely because, "maybe it will show up." Any delay in reporting may be considered negligence. Further, if an item has been stolen, the greater the delay in reporting it reduces the chances of a successful investigation and possible recover of the property or identification of the culprit. (NAVAIRDEVDENINSTS 5500.4A and 5530.1A).

Fiber optic sensors used for smart skins applications

By Lawrence L. Lyford

Future aircraft, made largely of newly developed composite materials, need a means of regularly checking their physical status and surrounding environment. The answer lies in what is called "smart skins." Simply put, a smart skin is an aircraft surface that has imbedded sensor's which detect an irregularity or problem condition or changes in the surrounding environment. It's like having a stethescope or EKG lead surgically imbedded in your skin. Only these sensors and connectors would almost be skin like themselves.

Fiber optic developments allow using imbedded fiber optic elements to provide sensory and excitation inputs on aircraft platforms built with advanced composite materials. These sensors will help to ascertain:

-Overall health and dynamical status of the aircraft in flight for the purpose of fight control and damage assessment.

-Information regarding the environment surrounding the aircraft such as atmospheric and electromagnetic conditions.

-Navigation and rate information via the utilization of fiber optical gyros.

-temperatures within a material during the fabrication and curing phase, as well as operational temperatures while the aircraft is in flight.

A fiber optic cable, depicted below, is composed of two cylindrically concentric

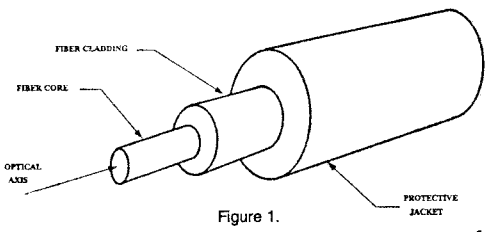


Figure 1.

glass structures with an inner core and an outer cladding. The core's index of refraction (amount light is bent) is slightly greater than that of the clad. This difference allows light to be reflected internally along the length of the fiber up to several kilometers.

Fiber optic cables operate in the single mode or multimode regions. Single mode fiber's dimensions allow only one configuration of light to pass through the core. A multimode fiber, generally larger in diameter, allows thousands to pass. Fiber optic sensing is performed as configurations of light are changed by a mechanical bend in the fiber, application of pressure or strain along its length, temperature change surrounding the fiber or interception of high intensity light.

Fiber can also be used to transmit and receive light using a lens system.

Various sensor and excitation groups, applicable to fiber optic implementation, are illustrated in figure 2. Fiber optic sensors and optical transmission techniques can increase a composite materials' effectiveness in stealth aircraft.

For example, fiber optic sensors can be used with surface contoured antenna systems to provide mechanical information on the deformation of antenna structures under high g maneuvers. This sensor data can be used to maintaining proper electro-magnetic beam profiles. Fiber optic sensors can be used to detect laxer illumination threats.

Communication links and radar systems involving satellite and ground based operations will require laser light and microwave systems whose antennas and optical lenses, will be compatible with the materials and geometries incorporated in the design of the aircraft structure.

Advanced aircraft designs with composite materials require real time data acquisition of vital physical and environmental parameters. Unlike uniform metalic materials of current aircraft designs, composite materials are constructed of carbon graphite fibers bonded together with an adhesisve material. Sometimes fibers are assembled tapes applied in layers impregnated with an adhesive and heat cured to produce a stiff, workable material for aircraft structures. Other times, fibers are woven or spun to make other forms.

A composite cross sectional profile consists of layers. The mechanical properties of a composite can not readily be determined from a surface measurements but only from internal ones. Recent advances led to the manufacture of low loss fiber optic cables usable as sensors.

FIBER OPTIC SENSOR AND EXCITATION GROUPS

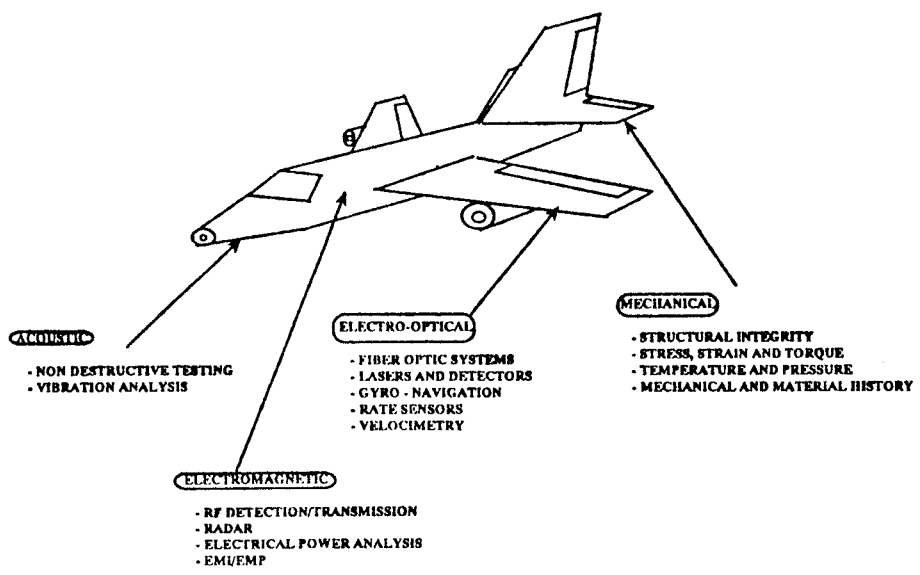
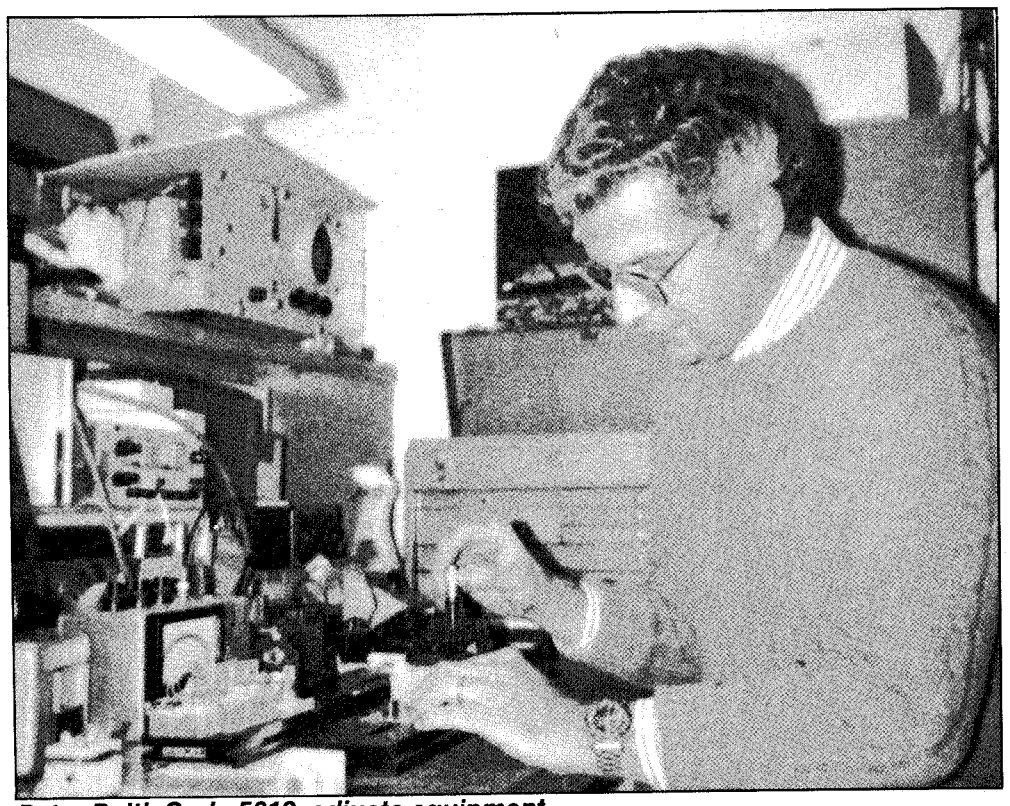


Figure 2.


Peter Raiti, Code 5012, adjusts equipment

Continued from EFFORTS page 1

Mr. Peter Raiti (Code 5012) is involved in an IED program investigating Fiber Optic Configurations Applied to Sensor Systems. His objective is to investigate various fiber optic sensor mechanisms, configurations and their incorporation into sensor measurement subsystems. Mr. Raiti has incorporated a tapered sensor in several applications. He also has developed several sensor applications and configurations being considered for patent applications.

A particular development incorporates fiber optic elements to evaluate location and intensity of a perturbation occurring over an extended surface. He has recently passed a fiber optic strain sensor and measurement subsystem to the Smart Structures progam headed by Dr. James Alper, Code 6043.

Dr. Alper is investigating mechanical properties causing metalic and composite material damage and failure. He is determining how best to apply surface and embedded fiber optic sensors to study crack growth around bolt holes. He is studying stress delamination of composits and is investigating vibrational damage and how best to use vibration sensors. Imbedded fiber optic sensors will reveal structural history usefull for maintenance personnel.

Dr. Leonard Buckley, Code 6064, is researching nonlinear optical materials as they may apply to sensor construction. Fiber optic cables coated with these polymers have frequency bandstop characteristics that relate to the applied strain. These polymers have additional applications as coatings applied to metalic or composite surfaces for active visual camouflage.

Mr. Gerald Pirrung, Code 5021, is conducting exploratory research to permit using Smart Skin Antennas for Communication Navigation Interogation (CNI) applications under sponsorship of Navigation and Aircraft C3 (NA2B) block program. Under this program, known as the Smart Skins Antenna Technology (SSAT), he will explore architectural concepts for embedding radiating elements, rf distribution networks and associated electronics activated by fiber optic systems. A primary objective is to explore optical control and the reconfiguring of phased array radiating elements.


Accidents here are rare but a contractor's temporary hangar-door wall recently blew down. No one was hit but Mike Masington, Code 092, the Command Safety Officer, notes too often people pass this area reading while they walk; bumping into people and parked forklifts.

Continued from OUTSTANDING Page 1

Mostello for his technical support related to the engineering, design and implementations of the Central Computer System (CCS) mechanical and electrical subsystems. He has been responsible for the successful design, engineering and implementation five mainframe systems including five mortor-generator sets. He provided outstanding support to the ASWEL and SP-22 laboratories, the Unmanned Vehicle and FASTER Laboratories.

Carol Taylor took the EEO Program Support Award for her significant impact on advancing equal opportunity at the Center. She has enhanced the center's responsiveness to minority needs in recruitment and training of scientists and engineers from minority colleges and universities. For five years she has furthered the Minorities in Engineering Program (MEP). She was instrumental in starting the Thresholds Prison Skill Teaching Program and visited both Chile and Haiti in support of her churches missionary program. She won the NADC Annual EEO Honorary Award in 1987 and the Philadelphia Area navy EEO Council Personal Incentive Award in 1988.

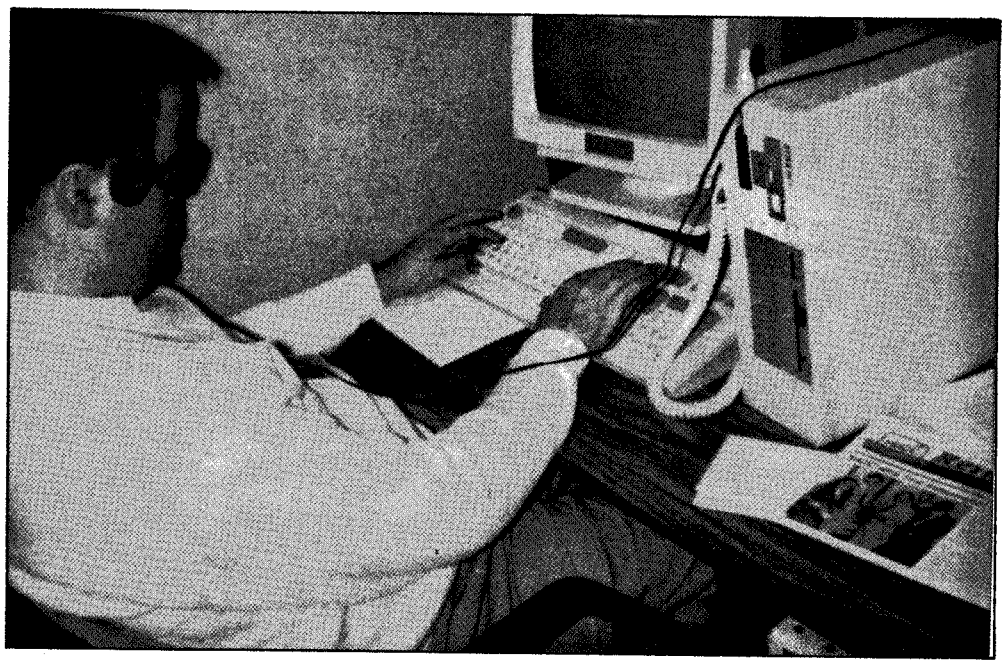
For her contributions as the financial planning expert Tactical Air systems Department, **Annmarie Burke** received the Administrative Support Award. She established a d-base providing automated five-year IDWA requirements for each center department. Her system was adopted by the F-14 Program Manager at the Naval Air Systems Command and all AIR-511 Aircraft Platforms and their field activities. She established project projection on two support services contracts totalling $20M and completed many Requests for Proposal packages for TACAIR's procurements completed in an exemplary manner.

Michael Hess was chosen for the Engineering Achievement Award for his contributions in the field of Infrared (IR) sensor engineering. In 1972, he initiated the first successful DOD program to develop IR Focal Plane Array technology. He was responsible for the first readout of an IR detector with a Charged Coupled Device (CCD) and first example of high-quality IR imagery with a Focal Plane Array which led to Naval patent rights. He developed a strategy for incorporation various levels of Infrared Search and Track (IRST) sensors into Navy aircraft His subsequent work provided core technology products He defined a clutter discrimination algorithm performance metric widely used today and developed a demonstration program to validate the surveillance IRDT concept. He continues to serve on Navy, DOD and NATO committees and panels.

A. Jerome McGlynn was the recipient of the Analysis/analytical Achievement Award as the Tactical Air Systems Department's lead analyst for tactical air warfare weapon control systems. He produced significant achievements in the analysis of air-to-air weapon systems effectiveness. He is an internationally recognized expert for the technical development, tactics, and counter-countermeasurees of the F-14 AWG-9 and APG-71 Radars, AIM-54A/C Phoenix Missiles Advanced Medium Range Air-to-Air Missile and Advanced Air to-Air Missiles. He provided significant high quality support to OP-95 for Outer Air Battle studies to the United States Air Force and to the North Atlantic Treaty Organization for strike warfare, air defense, and aircraft carrier operations.

The Aviation Support Award was given to **ADC Richard Henshaw** for his dynamic leadership and superb technical expertise providing "Full Mission Capable" aircraft and well-qualified crews to support worldwide research and development projects. His knowledge of aircraft maintenance and operations procedures enabled him to return aircraft to flying status after project installations.

Michael Saitta was the winner of the Project Leadership Award for the design, development, integration, testing and introduction of a series of avionics and software improvements to the basic P-3C fleet of over 300 aircraft. These improvements included operational mission and systems test software upgrades, mathematical algorithms, computer program stability and reliability enhancements, and acoustic processing changes.. He directed major P-3 hardware upgrades including additions of an Inverse Synthetic Aperture Radar capability, doubling of acoustic receiving/recording channel activity, memory expansion and planned replacement of the existing Tactical Mission Computer. His technical leadership in systems engineering of the Update IV Avionics Systems Full Scale Development has been crucial to the program's success.



Jude Dashiell, a Code 05A computer programmer, gets the first electronic copy of the Reflector produced and begins to convert the floppy disk files for use by his voice synthesizer. Dashiell asked if we could provide these disks. We could, so we did. He has offered to help the paper convert printed matter to electronc form once he gets a Kurzwell reader with speeech components for his use.

hiring freeze continues

By Jim Kingston

The Secretary of Defense announced by memorandum that he is continuing the DOD hiring freeze through December 31, 1990. His memorandum is quoted in its entirety:

"The hiring of civilians for positions within the Department of Defense is prohibited through December 31, 1990, with the same exceptions categories of exceptions and authority to grant exceptions as applied to the prohibition on hiring civilian personnel during fiscal year 1990. The Deputy Secretary of Defense may make such additional exception as he determines are necessary to meet urgent requirements.

The Assistant Secretary of Defense for Force Management and Personnel shall issue any instructions necessary to implement this memorandum, obtain reports, and keep Deputy Secretary and me informed.

Childcare representative to speak

Two career couples raising a family is no longer a future issue. Our society is such that it is normal for both parents to be working full time outside the home. In fact, according to the U.S. Department of Labor, 56% of women with children under age six are in the work force, and by the year 2000, three fourths of mothers with school age children are expected be working. This means that reconciling the conflicting needs of work and families must be a top priority.

In response to this need, the Federal Women's Program Committee will be sponsoring a guest speaker on Monday, 26 November 1990 at 1100 in the Center Auditorium. Connie Whitson, a representitive from the Montgomery County Child Care Association, will be on Center to discuss the types of questions which should be addressed when choosing a child care facility. "It is our hope that a Resource and Referral Service will be established through BEACON for use by all employees," said Robin Halperin from the FWPC.

All employees are invited to attend with supervisory permission.

National Smoke out month

Kick your butts on Nov. 15

By Heather O'Rourke

The NADC Wellness Program, Code 031, and Morale, Welfare and Recreation, Code 045, will be presenting the Great American Smokeout on November 15 in cooperation with the Bucks County Chapter of the American Cancer Society .

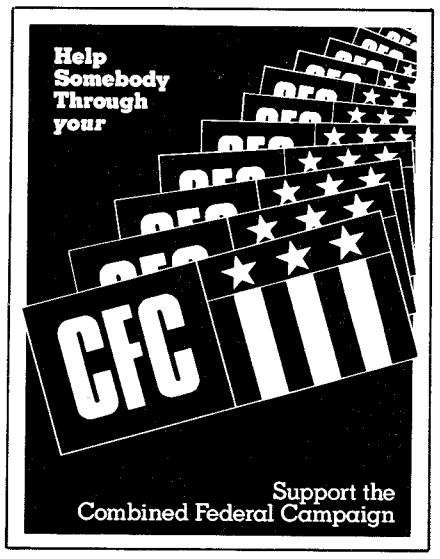
According to Ellen Finklestein of the Bucks County chapter, "The American Cancer Society's Great American Smokeout, held each year on the third Thursday in November, encourages smokers to take a day off from smoking just to prove to themselves that they can."

Last year's Smokeout proved to be victorious for 5.2 million people, or 10.5% of the nation's smokers, who gave up cigarettes for the entire day. One to three days later, 3.9% of those people were still not smoking.

Survival bags will be distributed to smokers (and non-smokers) on November 15 outside of the cafeteria from 11 am - 1 pm to assist you in "leaving the pack behind". In addition, a Cold Turkey Trot and Walk Your Butts Off Fun Run/Walk will be held on the flight line side of the base. There is no charge to participate and awards will be given to the top finishers in both divisions. Advance registration is required by calling Heather O'Rourke at X-2510.

Beacon and the NADC Wellness Program will be offering Smoking Cessation classes beginning on November 15. These classes cover different topics during four sessions. The class is free to Center employees with a comparable value of $100-$250. Although this session has been filled, interested smokers can contact Mike Markle at X-3607 for future class information.

Join the millions of Americans, the Wellness Program, MWR and the American Cancer Society on November 15 in making that day a tobacco-less one.



HELP SOMEBODY THROUGH YOUR
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SUPPORT THE
COMBINED FEDERAL CAMPAIGN

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PHUN PHYSIOLOGY

The Lipoprotein, Cholesterol, and heart desease link

By Jolie Bookspan, Ph.D.

Dear Dr. Phun Phys:

Holiday eating time is coming. I hear a lot about density lipoprotein (HDL) being better for you than low density lipoprotein (LDL). What foods have them? What is a lipoprotein, high density or otherwise? What do they have to do with cholesterol and heart disease? Why is HDL better than LDL, and how do I get less LDL and more HDL?

Signed, 'Systems & Software Technology Engineer'

Dear Engineer with many questions,

You can't eat them. Your body makes them. And evidence is growing that the way to your heart may well be through your stomach, — and your rocking chair.

What is a lipoprotein?

The lipoproteins are large molecule complexes in which proteins encapsulate lipids (fats) to transport them around the body by way of the blood stream.

There are five kinds of lipoproteins: chylomicrons, very low density lipoproteins (VLDL), low density liproproteins (LDL), intermediate density lipoproteins (IDL), and high density lipoproteins (HDL). HDL is further fractionated into HDL1, HDL2, HDL3. To answer your questions without writing a book, I'll stick to LDL and HDL.

What do lipoproteins have to do with heart disease?

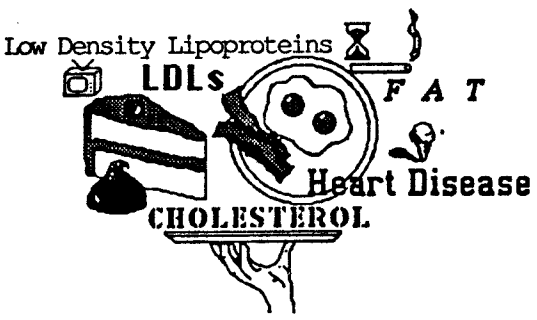
LDL picks up to 60 to 75% of your serum cholesterol from ingested fats and from the liver where it's synthesized and hurries it off to be deposited in the cells of your blood vessels and muscles.

Cholesterol in cells lining your arteries builds up fatty deposits called atherosclerotic plaques (*'athero'* pertains to arteries, and *'sclerosis'* means hardening). These vessel narrowing plaques are composed of LDL and VLDL (very low density lipoproteins). Because LDL carries most of the cholesterol, the serum LDL level is directly associated with risk of heart disease. That's why LDL is also called 'bad cholesterol.' The higher the LDL levels, the greater the incidence of heart attacks or angina pectoris (*'angina'* means pain, and *'pectoris'* refers to the chest).

It's not just older people that get coronary artery disease. Autopsies on American soldiers killed in Vietnam and Korea showed that the majority already had moderately advanced atherosclerosis.

Why is HDL better than LDL?

HDL removes cholesterol from the blood stream and does not collect or stick to th inner linings of your arteries. HDL, popularly called 'good cholesterol' contains an enzyme that helps break down deposits already in residence, dragging 'used' cholesterol away from the cells back to the liver for recycling and excretion. Clinical findings indicate that the higher your HDL level, the lower your risk of heart disease, suggesting HDL may protect against atherosclerosis and heart disease.



What do lipoproteins have to do with cholesterol?

Cholesterol is one of three lipids ushered around your blood by lipoproteins. Cholesterol has an unwholesome reputation, but is an essential ingredient in several of your steroid hormones, the bile acids that break down fat, and every cell membrane in your body. Lipoproteins ferry cholesterol to and from each cell in amounts determined by your food choices and exercise.

What differentiates 'High' from 'Low' density?

Lipoproteins are classified by density, which is determined by lipid content. LDL has more lipid than HDL. Normally when you call something 'low,' you think of a lesser amount. But the higher lipid content of LDL decreases the density because fat is less dense than other body constituents. Think of cream floating in milk. Heavy cream has more fat than light cream, making it less dense. Although it weighs less than light cream, it's called 'heavy' for its higher fat content. In the same way LDL has more fat but is lower density.

The names 'high' and 'low' derive not only from density, but packaging. Loosely packed LDL cholesterol floats through the blood stream to your cells. Cholesterol released from the cells tightly crams into HDL for the voyage back to the liver.

How do I get less LDL and more HDL?

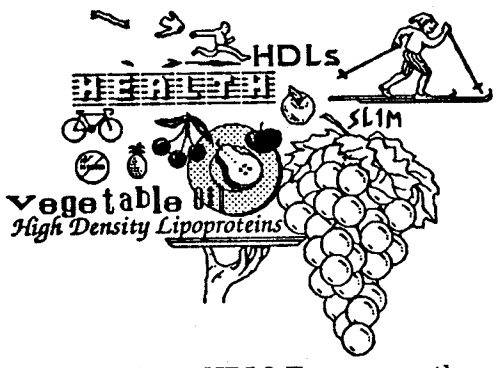
It's not difficult. Although blood vessel diseases like heart attack and stroke are the number one killers in the United States and Great Britain, they are practically strangers in half the world. In those areas intake of animal products and fat is low, activity level is high, and smoking is almost unknown.

High levels of circulating HDL in relation to LDL is more important than the total amount of blood cholesterol. Results of controlled studies show you can steer your HDL/LDL ratio in a healthy direction by what you eat and how much you exercise.

LDL levels may be directly related to eating saturated fat, although the question of how much dietary fat intake affects the patterns of HDL, LDL and VLDL cholesterol levels has not been answered to consensus in the medical community. It is agreed that saturated fat increases the rate of cholesterol formation, and that people, especially those at risk of heart disease, who already have a heart condition, or are overweight should limit cholesterol, and more importantly, saturated fat in their food. Several recent studies published in established medical journals report reversal of coronary artery disease with exercise and reduced dietary cholesterol and fat.

You get saturated fat from all animal sources, like meat, fowl, diary, and eggs. In contrast, no vegetable oils are naturally saturated except the tropical palm or coconut oils, and the cocoa fat in chocolate. Beware of ingredients like hydrogenated vegetable oils. Hydrogenation artificially saturates vegetable oil.

Cholesterol is only found in animal products. Even if you ate no cholesterol at all, your liver would manufacture all you need. So a positive first step to lower LDL is to substitute vegetable for animal food at every opportunity. For the cholesterol-fiber connection, ask in another column.

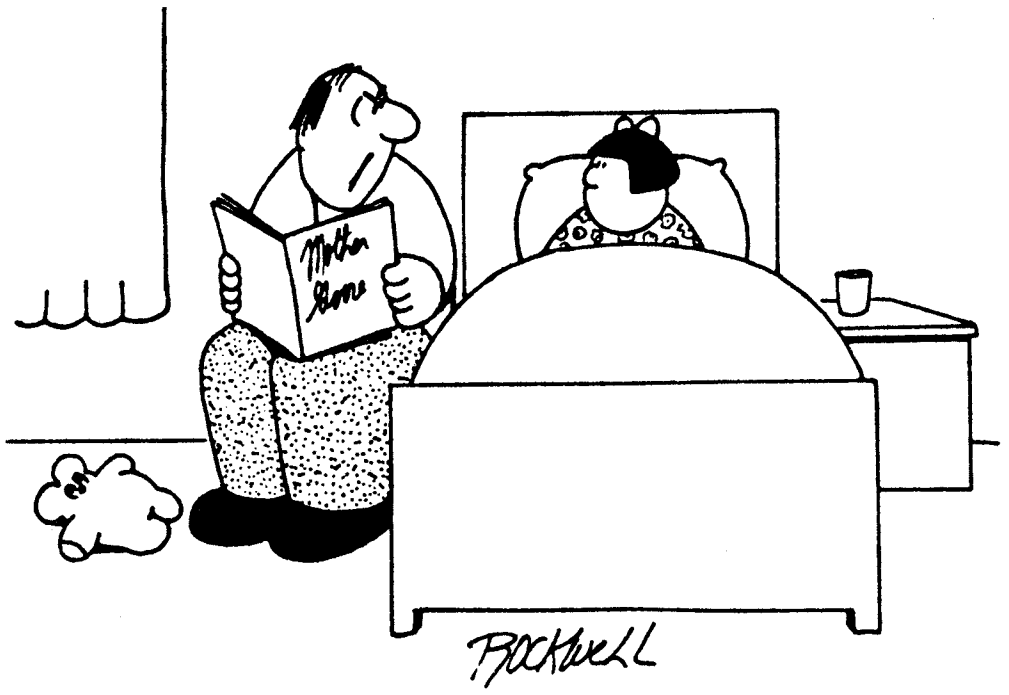


What about HDL? Even more than dietary change and weight loss, endurance exercise increases HDL and its important enzyme, and decreases total blood cholesterol, triglycerides and LDL is both men and women. Altered blood lipid profile may be one of the principal mechanisms of reduced risk of heart disease through exercise.

If there weren't enough reasons to quit smoking, here's another: smoking lowers HDL. Another anti-HDL agent is common among some athletes and body builders. The male hormone testosterone is known to depress HDL levels. Taking anabolic steroids can plummet HDL levels from a healthy average of 40 mg/dl (milligrams per deciliter of blood) to 8mg/dl.

Every year thousands of people die by the frying pan. So, get exercise, get lean, get more vegetables on your plate, and get rid of those cigarettes. Remember, it's not what you eat between Christmas and New Year's, it's what you eat between New Year's and Christmas.

Send questions for Phun Physiology to: Editor, REFLECTOR, Code 041.



"How should I know what Jack Sprat's cholesterol level was?"

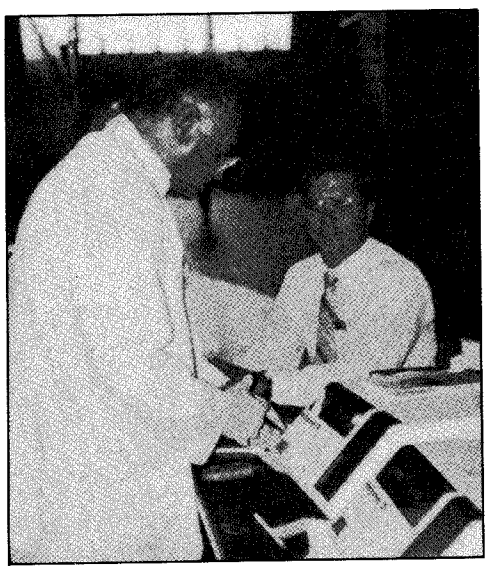
Two Cholesterol screenings held in hangar

By Lawrence L. Lyford

U.S. Healthcare sponsored a free cholesterol screening for employees at NADC last month and employees of Damon Labs conducted the tests. It took about three minutes to get the results after waiting up to an hour in line.

"If the cholesterol level is more than 200 mg/dl we recommend a follow up diagnostic test. The screening is within 10% of the diagnostic test, but doesn't differentiate between the types of cholesterol," said Joseph Hoover, U.S. Healthcare marketing representative. "Every year, we get about five people who have high cholesterol levels and have never been tested before. This is what makes the trip satisfying.

The aggregate results for this year are: 415 people were tested; 263 had cholesterol levels under 200 mg/dl; 95 people had levels between 200 and 239 mg/dl; and, 57 people had levels above 240 mg/dl.



Mark Gindele, Code 3033, gets screened.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

Ski club jumps into 15th year

By Carl Reitz

The NADC Ski Club has benn active since 1977. Back then a five-day bus trip to Quebec, Province in Canada was considered a big and risky deal. Times sure have changed. This year the Ski Club expanded its horizons and is offering two different trips to Colorado and two long weekends in the Northeast. One of the Colorado trips already is sold out, but the others are all still available.

The 200 members of the Club welcome new members. Charlie Falchetti,Club President, says the primary goal of the Club is to offer low-cost skiing through group discounts. A larger number of people for the Eastern trips also allows taking the bus and leaving the driving to someone else. Surviving a Monday at the Center is a lot easier after reclining Sunday night in a big seat rather, than driving your car down the snow-covered Northway. The Club is sponsored by the Center's Welfare and Recreation Association and is open to all Center employees. The easiest way to join the Ski Club is to contact Marguerite Hoefling, club secretary at x3767. Besides increasing camaraderie, having more members will help us provide a greater variety of trips at even lower prices.

The Ski Club meets at the Crew's Rest. At each meeting, the Club provides complimentary snacks. Donna Morgan, Meetings Chairman, will have some novel themes for the meetings, so come on out and enjoy. Meetings are at 7 pm on the first Monday of the month - except in March when we will meet on the 11th to avoid conflict with our Crested Butte Colorado ski trip.

Tom Knott, the Chairman has come up with exceptional values to great ski areas. The trips also shown on the Ski Club calendar are:

January 17-21. Martin Luther King's Birthday four-day weekend to Breckenridge Colorado. Skiing at the high altitudes of Summit County, lodging in condominiums. $420

SORRY, THIS TRIP SOLD OUT THE FIRST DAY THAT IT WAS OFFERED!

January 31 - February 3. Our traditional three-day bus trip to Lake Placid, NY with alpine skiing at Whiteface, nordic skiing at Mt. Van Hovenburg and olympic sightseeing. Lodging at the Town House Motel right in town. $154

Call Roland Bender x1176

February 26 - March 5. The big one - a week in Crested Butte, Colorado. North face bowls are full of double-diamonds and the front of the mountain has lots of more gentle terrain. Five day lift ticket and condominium lodging. $719

Call Bill Singleton x2697

March 15-18. Saint Patrick's Day at Killington. The three-day (Fri-Mon) trip features skiing at the East's biggest mountain and includes full use of the health club at Mountain Green Condominiums.$139

Call Carl Reitz x1935

For those who want to know more about the Club - or just have an interest in skiing - the Ski Club will host an open house in the Center Auditorium from 1130 to 1230 Monday 19 November. Stop in to get complete information on all trips, sign up for the trips and become a member of this group that has fun at all levels of skiing.

1990-91 NADC SKI CLUB CALENDAR

November 1990
Mon 5Meeting at Crew's Rest, 7pm

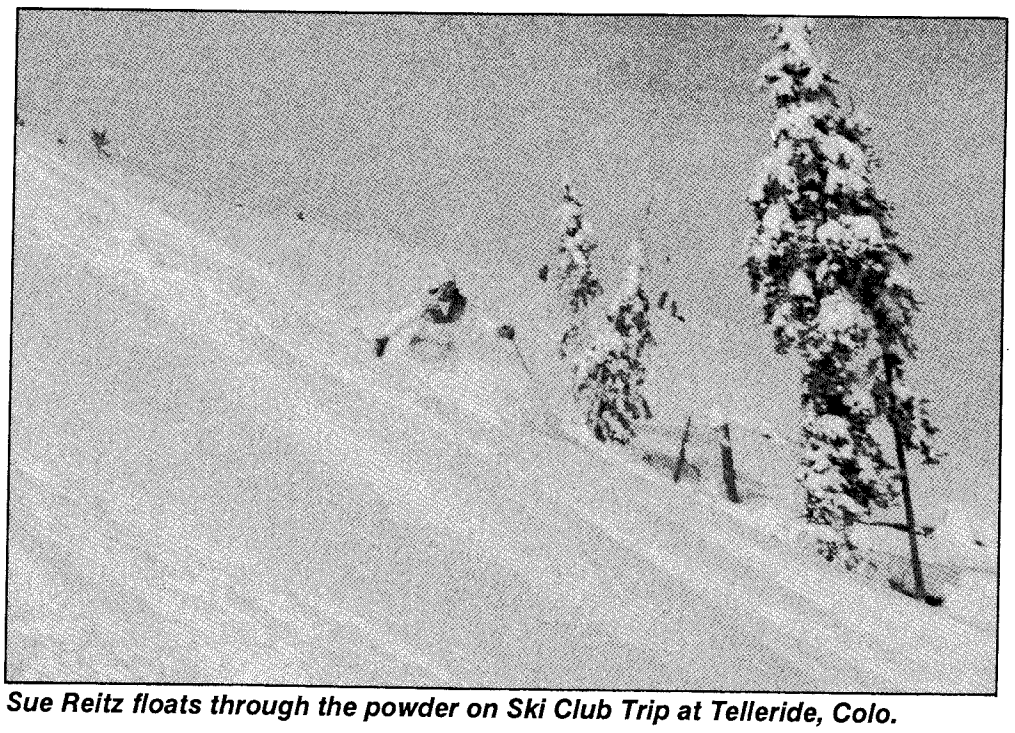
December 1990
Mon 3Meeting at Crew's Rest, 7pm

January 1991
Mon 7Meeting at Crew's Rest, 7pm
Thur17Depart for Breckenridge, Colo
Fr-Mo18-21Skiing @ Breckenridge, Colo
Mon21King's Birthday - NADC Closed
Thur31Depart for Lake Placid, NY

February 1991
Fr-Su1-3Skiing @ Lake Placid, NY
Mon 4Meeting at Crew's Rest, 7pm
Tue26Depart for Crested Butte, Colo
We-Mo27-28Skiing @ Crested Butte (continues into March)

March 1991
We-Mo 1-4Still skiing @ Crested Butte, Colo
Tue 5Return from Crested Butte, Colo
Mon11Meeting at Crew's Rest, 7pm
Fri15Depart for Killington, Vermont

Charles Falchetti and others enjoy quick meal.



Sue Reitz floats through the powder on Ski Club Trip at Telleride, Colo.

Photo by Chas. Falchetti

1991 Guzzler Classic featured unique format

By Charlie Destra

The ninth annual Guzzler Fall Classic was played at scenic Horsham Valley Golf Club on September 21, with a record 13 teams (48 participants) vying for the coveted Guzzler trophy. This year's format, a team "best ball" event, featured one of the tightest competitions in years.

The honors went to the foresome of Doug Bancroft, Pat Finnegan, Jim Buggy and Jim Donahue, whose team total of 59 nipped the John Weber, Ron Kreutizer, Irv Stilo and Dave Knauer contingent by two strokes. Bancroft led the charge for his team with a nifty 77 on the short, but deceivingly tough course. Finnegan, showing more prowess with a golf club than he ever displayed with a bat as a softball player, recored a solid 85. Four teams came in third with scores of 62.

The scoring system is a bit complicated to explain, but put simply, the teams were required to use individual player's scores a minimum of three times — a system that rewards team play. The team's handicap figure was then factored into the final individual raw scores. The Bancroft's foursome carded a team score of 72, minus their 13 handicap for a 59 total.

In other events, my good pal Tom Weiss captured the longest drive competition with a robust 252-yard jolt using a 4-wood on the straightaway ninth hole, and Al Salik plopped one 20 feet from the 10th cup to win the closest-to-the-pin crown.

Many of the golfers had difficulty with the course — despite the ideal weather conditions — thanks mainly to the "three club rule", the brainchild of Jim Eck, who coincidentally was a no-show. (Rumor had it that Eck didn't want to be embarrassed with a high score using his own rule.) The rule requires each player to use only three clubs. A putter, short iron and either a long iron or wood were the typical choices. For golfers accustomed to utilizing a variety of clubs, it proved to be a difficult adjustment. Moreover, with the elaborate scoring system, a bad outing by just one of the players was enough to affect his or her team's chances.

Did I say "her"? Yes, another Guzzler first featured four female participants: Donna Morgan, Leslie Detrick, Marie Lage and Jenny Shannon. When the competition ended, the ladies got into the true Guzzler spirit by showing a willingness to guzzle beers with the best of their male counterparts — excluding tournament director John Markow and Jack Eyth of course — two champions of after-hours activities. It was then that Eyth came up with the day's best line. Explaining his understanding of the "three club rule", the Iceman said he "thought it referred to the number of clubs we were going to visit" after the event.

The Field	
Bancroft-Finnegan-Buggy-Donahue	59
Weber-Kreutizer-Stilo-Knauer	61
Weiss-Cerino-Gauntt-Hribar	62
Lystad-McAvoy-Kennedy-Salik	62
Eble-Allodili-Zuccarelli-Gelman	62
Orr-Ogilvie-Whitenack-Kee	62
Bowes-McGinley-Goodenough-Shannon	65
G. Dunn-J. Dunn-Brown-Morgan	66
Eyth-Delserro-Detrick-Lage	67
Destra-Price-Leidy-Peirce	67
Constanzo-DeLarso-Linke-Ferkel	67
Reis-Mitchell-Deebel-Zeiger	68
Morris-Geyer-Markow-Vansant	72

From ANSWER Page 2.

date new and expanding programs and from the support departments to better serve the technical departments. We are not always able to respond positively to these requests. Most recently, the Center had to lease portable office space for a new ASW project. The Center training rooms are located off Center in rented spaces because of the requirement to meet the technical training needs of the Center.

Center Space Committee

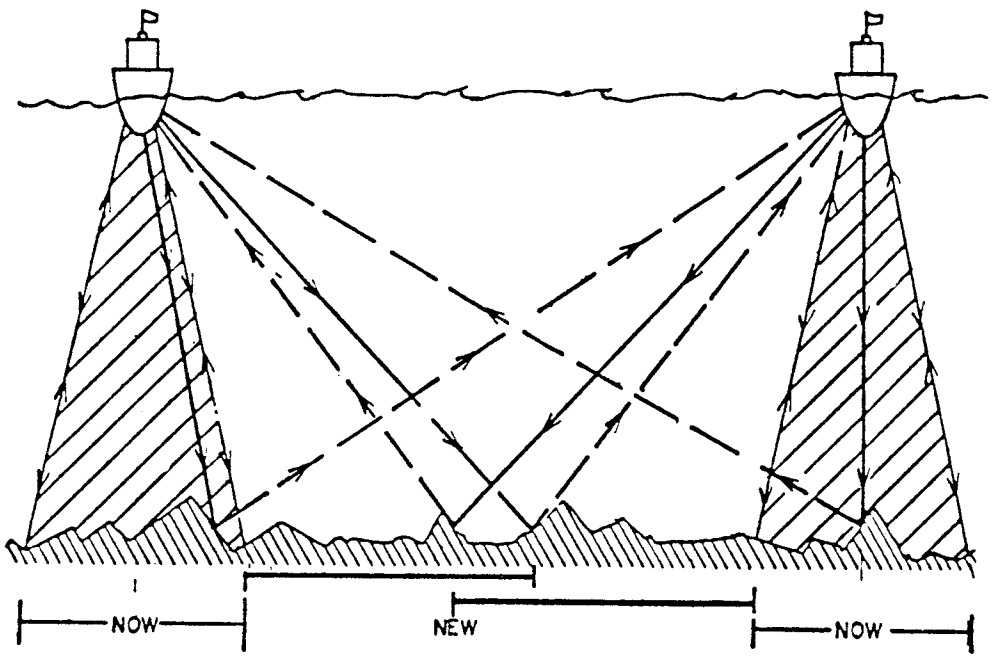
NADC

Ref-actor

Volume 35 Number 12 NAVAL AIR DEVELOPMENT CENTER, WARMINSTER, PA. December 1990

J. BARTON 5021

Global Positioning System to guide ocean-mapping ships



Vertical cross section of two ships miles apart mapping an ocean bottom using the bistatic bathymetric system. Ships move in a parallel direction and sonar pings are bounced back to the sending ship or the companion one to fix points on the ocean floor. GPS locates the ships and the bottom points.

By Jim Kingston

Mapping the Earth's surface with all its mountains, valleys, and plains is no small task. Even in the light of day and with highly sophisticated aerial photographic equipment, it's tough. Now, add mile-deep water and try mapping the ocean floor — some of which has never seen the light of day. That's really tough. Or is it?

If Marvin Gaer and Peter Tran of Code 40 have anything to do with it, mapping the world's ocean floors won't be so tough and, in fact, may be much more efficient.

Their proposed Global Positioning System (GPS) - guided bistatic sonar bathymetric system involves using two ocean-survey ships moving along essentially parallel tracks several miles apart measuring ocean depths. Each ship transmits sonar pulses (pings) directed toward the ocean floor in such a manner as to be back-scattered to the transmitting ship or forward-scattered to its companion ship.

According to Gaer and Tran, GPS plays a dual role in this process. First, GPS is used for control guidance of the two ships and, second, it provides accurate position-fixing of the transmitted and received sonar signals.

Under operational conditions, the ships transmit pings from sonar projectors mounted on their hulls. These pulses form narrow fan-shaped beams that spread along the ocean floor like echoes and are picked up by an array of hydrophones also mounted on the ships' hulls the peaks. Phases of these underwater echoes are sensed by the hydrophones and the data can be processed to indicate the direction of a scattering point on the ocean floor.

When the time interval of the signal and the GPS-fixed coordinates of the transmitter and receiver are compared, the location and depth of the scattering point can be computed accurately.

The result is that each ping covers a narrow strip of ocean with a sound pulse from which cam be determined a finite

See Global page 6

Master Chief Petty Officer of the Navy Pays visit to NADC

By JO2 Michael Delledonne

"I'm impressed with what you've got our junior people doing here at NADC," said Master Chief Petty Officer of the Navy (MCPON) Duane Bushey the Navy's top enlisted man who visited the Center on October 16. It's really good to see the quality of people in the Navy."

Bushey discussed many things including the Navy's participation in Operation Desert Shield. "Our participation in the Middle East can be summed up in one word, outstanding," he said. "The Navy was one of the first on the scene which proves how vital it is to have amphibious forces of Navy and Marines ready. Of course, the Army and Air Force came in and also did a super job."

Asked if he expected a long stay, Bushey nodded. "Who am I to say, but a long stay may be better than a short one. Unfortunately, if we get into a shooting war there are going to be a lot of casualties. Let's hope if we do our job right nobody will do anything to get anybody

Bushey also noted how world wide operations may change because of the Middle East crisis. "Operations could change if we have to stay there for a long time,say, if we're still there by this time next year. The Chief of Naval Operations (CNO) is very commited to sticking to six-month tours, but with the number of assets we have over there right now somethings got to give. Right now there are no plans to extend deployments at sea, but we need to look to the future. We don't know what Saddam Hussein is going to do. We don't know what the world situation is going to be.

He also discussed the affect of the vast changes taking place in Eastern Europe.

"The biggest change will be that we will become a smaller Navy, but all the changes will be for the good. With a smaller Navy, we will become a more technical, Navy.

Bushey sees no new funds for Military, Welfare, and Recreation (MWR). "I think in the long run, MWR is going to have to become more supportive of themselves. I've told sailors everywhere I go that they are going to have to contribute more to MWR. Some of that's good and here's why: Our club system has improved tremendously because we took away a lot of those appropriated funds. We had clubs that were just beer joints or watering holes which were not providing good service to the sailor, yet we were still subsidizing it with thousands of dollars every year. Now, those clubs have hired new people and are providing the service sailors want—a place you can take their family and not be embarassed; a quality meal at a quality price."

Since taking over as MCPON in September 1988, Bushey said his biggest accomplishment has been being part of a system that has helped make changes. "I think the system now looks at things realistically and people are working together to get the job done. There is not a single person in Washington who can look at any one thing and say, 'I did that.'

Bushey contends listening and taking sailor's ideas back to Washington is his job. "The thing that scares me is staying in the job too long. If I ever get to the point where I don't listen, then I don't want to do this job anymore. I really believe I work for the sailors. If I can't represent them, or start believing I know more than they do, then it's time to get out. I don't ever want to turn into a politician."

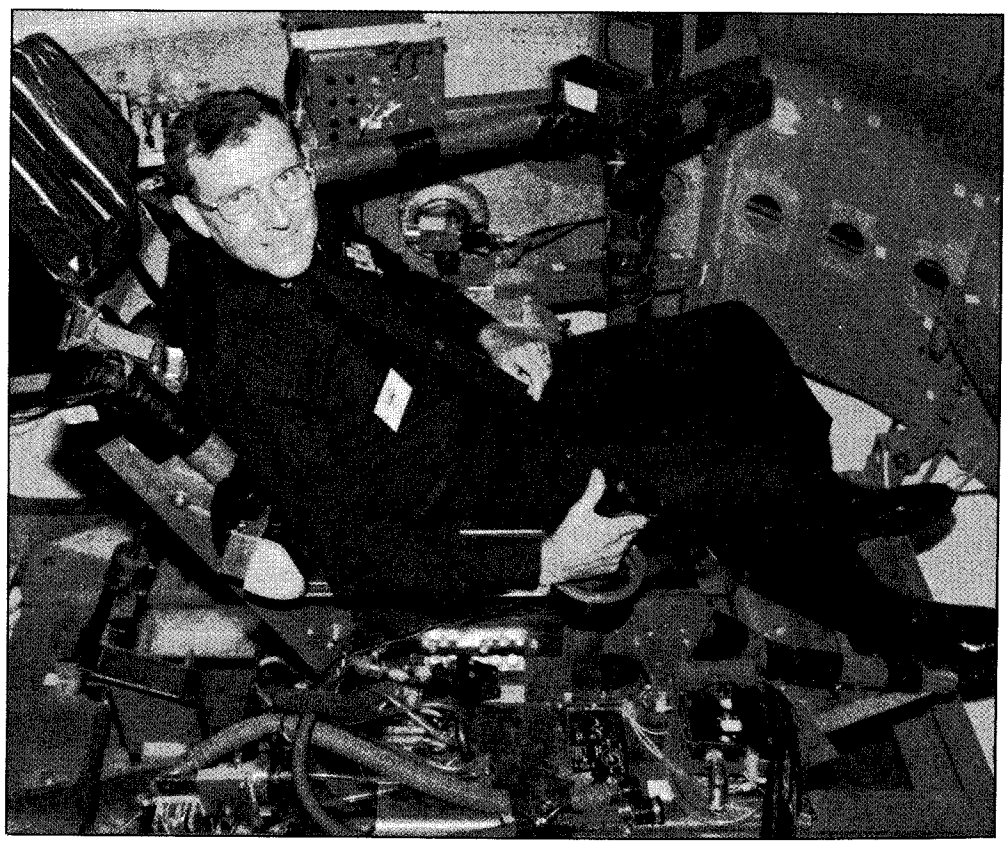
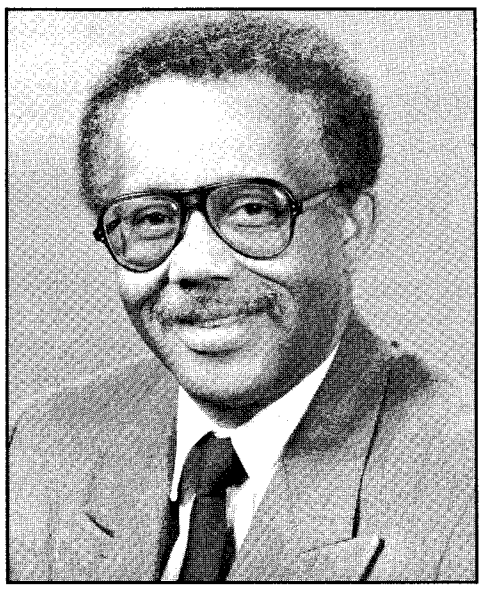


Photo by JO2 Michael Delledonne

Master Chief Petty Officer of the Navy, Duane Bushey gets a feel for the Dynamic Flight Simulator during his visit to NADC.

Command Corner

Captain Curtis J. Winters
Center Commander



Guy C. Dilworth, Jr.
Technical Director

Frequently asked question

With the positive reputation the Center has for environmental concerns I have been asked how to dispose of used motor oil. If you, likewise, get asked this question and haven't had the answer at your fingertips, here's information you may use to be a good neighbor.

Residents of Bucks County can contact the Bucks County Recycling Center, 1510 Swamp Road, Fountainville, 18923 or call 249-0487. Residents of Montgomery County can contact the Montgomery County Planning Commission, Montgomery County Courthouse, Norristown, 19404 or call 267-3000.

Pennsylvania residents generate 35 million gallons of used motor oil annually. Much of it does not reach recycling centers. Oil improperly dumped in our neighborhood is on its way to our own aquifers.

Employees living in other counties or not remembering the preceding numbers may refer people to their county court house information operator.

C. J. Winters

If the SOC fits

Parties violate prohibition

One of the hallmarks of the Navy's Standards of Conduct (SOC) is the prohibition against the acceptance of gratuities from defense contractors, and it is good to keep this rule in mind during the forthcoming holiday season. The term "gratuity" is defined in the Navy's SOC instruction as "any gift, favor, entertainment, hospitality, transportation, loan, or other tangible or intangible item or benefit" provided at less than fair market value. It's a far-reaching definition, which comes into play not merely with gifts, but also with holiday parties.

In past years, some of our local NADC contractors have hosted parties or receptions and extended invitations to Center employees. If and when our employees attend such parties and accept free food and drinks, they are accepting gratuities in violation of the SOC. There need be no showing that the contractor was granted some favor or preference in exchange for the gratuity. The mere acceptance of the gratuity is forbidden because of the appearance it creates.

There have been instances where contractors have encouraged attendance at these functions on the grounds that any Government employee who attended could, if he so chose, pay his full share of the cost. Even these arrangements should be avoided, for many times it proves that the company itself has contributed to defray some of the expenses. Moreover, the mere attendance by a government employee at something like this can often create an appearance that that employee might be favorably inclined and less than fully objective toward that contractor. It is therefore a prudent rule to avoid attending these sorts of functions, even when you are told you can pay your own way.

Editor's note:

Letters to the editor are welcome. We will withhold names if requested; however, letters must be signed. This is a DOD wide requirement and helps us clarify intent. Occasionally, we'll only be authorized to provide an individual response. Presently, we have one pending without author identification.

ERRATA

The article recognizing Angel Carreras failed to identify correctly two employees. Carlos Falcon was pictured with Angel Carreras and Rosa M. Cerankowski was identified as a "NADC contracting officer." She is a Contract Specialist. One of the two Hispanic students Carreras help recruit is Hasan El Musa. He was identified as Hasan Elmusa. A total of $1,286 in academic scholarships was presented to two high school seniors from ticket sales in excess of the program's cost.

Commander Salutes

Andrew Atkinson, (Code 01A); MAJ **Barry C. Hansen**, (Code 09L2); CAPT **Gregory A. Markwell**, (Code 10A); **Robert Fay**, (Code 2011); **James Crowley**, (Code 705); **Owen A.Medd**, (Code 705); **Robert Londer**, (Code 7051); **William Mulley**, (Code 7051); **John J. Williamson**, Jr., (Code 7052); **Margaret Vigelis**, (Code 041); **Lois Kieserman**, (Code 04413); **Richard Mitchi**, (Code 8132); **James J. Moore**, (Code 8132): For the outstanding program support you provided on the AH-1W Attack Helicopter briefing to industry.

Steven T. McComas, (Code 101): For your valuable contributions in support of the P-3 Update IV Software Development Program.

ATC **David R. Ader**, (Code 103): For your significant contributions to the successful "Say No To Drugs" day at Shenandoah Woods.

Head, Communication Navigation Technology Department, (Code 40): Presentation of Trident II (D-5) flag for your department's support of the Fleet Ballistic Missile Submarine Program for the past 35 years.

Michael E. Warren, (Code 5042); **Joseph Flynn**, (Code 5052): For your technical support and active participation in the Naval Avionics Center's Low-Intensity Conflict War Game Seminar.

Letters to the Editor

Questions university animal labs

Editor,

In the Reflector, you discussed DOD's unique Uniformed Services University of the Health Sciences (USUHS). The USUHS is unique in yet another respect. According to the Jan/Feb newsletter of the Physicians Committee for Responsible Medicine, the USUHS is "among the few which continue to deny students the right to choose an alternative (to animal laboratory exercises)."

One other animal-laboratory intensive program terminated when Oral Roberts University closed its medical school. Nearly all of the remaining medical schools permit students to choose whether or not to participate. Many use no animals in their curricula. These include Howard University of Washington, D.C. the University of Maryland, Baltimore and Hahnemann University of Philadelphia.

Since other medical schools maintain successful programs without using animal laboratories, I believe that USUHS should abandon this archaic and unnecessary practice.

Joseph A. Alfano,

Code 7013

University responds

Reflector Editor:

The Uniformed Services University of the Health Sciences' educational and research programs are broad-based and designed to meet the wide-ranging requirements of the medical branches of the U.S. Army, Navy, Air Force and Public Health Services.

Elements of these programs include the entire spectrum of methods available for providing high-quality education and state-of-the-art research. While the maximum possible use is made of non-animal methods, including videotaped demonstrations, computer simulations, cell and tissue cultures, and other in vitro techniques, the use of live invertebrate and vertebrate animals continues to be an integral part of the university educational and research programs. There are currently no non-animal techniques of simulations which can completely duplicate the multiple and diverse interactions of the various physiological and biochemical systems on an intact organism.

The USUHS program which involve animals meet or exceed all applicable laws, regulations and guidelines, and its animal care and use programs has been fully accredited by the American Association for Accreditation of Laboratory Animal Care. The university subscribes wholeheartedly to the principles and policies set forth in the National Research Council's "Guide for the Care and Use of Laboratory Animals"; the U.S. government's "Principles of the Utilization and Care of Vertebrate Animals Used in testing, Research and Training;" and the Public Health Service's "Policy on Humane Care and Use of Laboratory Animals by Institutions."

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Assistant Editor . . . . . **Margaret Vigelis**

Team continues microstructural evaluation

By Lawrence L. Lyford

Dr. William E. Frazier, Dr. John E. Benciand Mr. Joseph W. Zanter of the Advanced Metallic and Ceramic Materials Branch have been evaluating the microstructure of aluminum-titanium and aluminum-titanium-copper intermetallic alloys. These researchers are also collaborating with Mrs. Mary E. Donnellan, a researcher in the same branch, and investigating the potential of titanium trialuminide composites. These programs are supported by the 6.2 Airborne Materials Block, Office of Naval Research, and the Independent Research program.

The development of advanced airframes and propulsion systems has generated significant activity in the area of light weight, high temperature, intermetallic alloys. However, titanium trialuminides such as Al_3Ti, an intermetallic which has a low density and a high melting point, has received little scientific scrutiny principally because of its intrinsically low ductility and fracture toughness.

In a recent investigation, the microstructures of Al_3Ti and Al_3Ti plus copper were examined in their as-cast and melt spun conditions. As-cast and melt spun relate to manufacturing techniques. Rapid solidification enhanced the chemical uniformity, and the addition of copper transformed the structure of Al_3Ti from a tetragonal (stacked cubes) to a cubic structure with a higher crystallographic symmetry.

Exploration of the aluminum rich portion of the aluminum-titanium equilibrium phase diagram is in its infancy. Aluminum rich intermetallic alloys alloys such as Al_3Ti are thermodynamically stable and exist over a wide range of temperatures. The exploitation of a titanium trialuminide based alloy would provide a high performance aircraft material with a high melting point, high stiffness, low density, and elevated temperature strength. In addition, Al_3Ti is reported to have a superior oxidation resistance compared to conventional titanium alloys, and the emerging super-alpha-two and gamma-titanium aluminides.

The use of titanium trialuminides has been seriously impeded by their lack of tensile ductility and their poor fracture toughness. Attempts have been made to improve ductility by alloying with various transition elements, such as iron and nickel. Unfortunately, they too fail in a brittle manner.

The majority of work to date on the Al_3Ti system has been cursory, screening-type investigations on arc melted, cast materials. This is not the ideal material condition for achieving optimal mechanical and physical properties. The goal of the ongoing work on Al_3Ti system at NADC is to improve mechanical properties, especially ductility, by understanding and carefully controlling the alloy's composition, processing route, and microstructure.

A powder processing route was chosen and rapidly solidified alloy powders were produced by a process of melt spinning and comminution. Melt spinning produced high purity and chemically homogeneous materials with a very fine microstructure.

Copper has been shown to be an effective means of obtaining a cubic structure which is stable over a wide range of compositions. The present work examined the effect of copper on the microstructure of arc melted specimens and compared them to rapidly solidified ribbons.

Four alloys were examined: (i) Al_3Ti, (ii) $Al_{5.5}Cu_{0.5}Ti_2$, (iii) Al_5CuTi_2, and (iv) $Al_{4.5}Cu_{1.5}Ti_2$. High purity elemental aluminum, copper, and titanium were used in sample preparation. The castings were prepared by arc melting the alloys at temperatures exceeding 1350 °C (2462 °F) in a water cooled copper hearth. Melt spun powders were produced by tilting the hearth allowing the molten metal to be extracted by a rapidly spinning molybdenum wheel. By using this technique, cooling rates of one million degrees per second are possible. Rapid solidification is essential because it prevents deleterious chemical segregation by "freezing in" alloying elements.

The crystal structures of the alloys were determined using the x-ray powder diffraction method. The cast alloys exhibited a diversity of microstructures.

"This work provided preliminary results of an ongoing program to examine the effects of composition, microstructure, and processing on the mechanical properties of the alloys. The ultimate goal being to obtain usable levels of ductility and fracture toughness."

Morphological differences were observed within individual castings as well as in castings of differing compositions.

In contrast to the multiple phases observed in the cast alloys, the melt spun materials were all single phase and exhibited less diversity in structure and morphology. Two distinct morphologies were observed: a more-or-less featureless one; and a coarser, cellular-like microstructure, one indicative of a slower solidification rate.

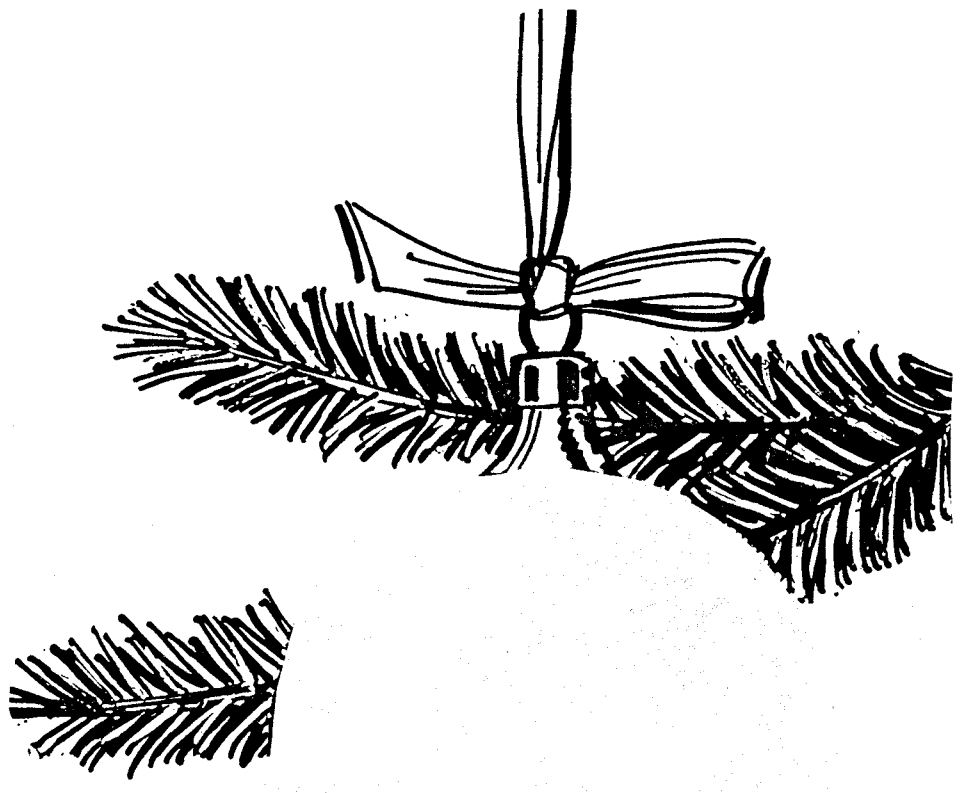
This work provided preliminary results of an ongoing program to examine the effects of composition, microstructure, and processing on the mechanical properties of the alloys. The ultimate goal being to obtain usable levels of ductility and fracture toughness. The approach taken has been to introduce copper (macroalloy with copper) in order to achieve a cubic structure and use rapid solidification to achieve compositional and structural homogeneity.

Rapid solidification of Al_3Ti based materials was of singular importance. It resulted in extremely fine grained, homogeneous microstructure.

Copper content was found to have a significant effect on alloy hardness, lattice parameter, and density however, the copper reduced alloy hardness. Thus, rapid solidification and alloy composition are now viewed as important processing variables to alter alloy properties.

Future work will focus on optimizing the consolidation processing of these and other Al_3Ti based alloys. Additional significant improvements may be made by understanding and modeling the melt spinning process - a subject of a proposed Center IR program by Mr. Jeffrey Cook.

Mr. Harry Tyndall, Code 6063, assisted in the production and analysis of the melt spun and cast alloys for the project.



Make holidays safer

By Lawrence L. Lyford

Christmas trees, live and or artificial are a leading cause of injury and property damage during the holiday season but each family is sure theirs is safe. Here are some helpful suggestions.

Tap the tree on the ground before purchasing it or bend small branches to test flexibility. This will prevent you from buying a tree cut weeks early and recently shipped to our area.

Purchase a tree slightly taller than needed to allow margin for cutting off at least six inches from the bottom. This extra cut back provides additional safety because of increased water absorption. Doing this usually requires cutting away some bottom branches, too, so most people cut only 2-3 inches and get less capillary action. Sacrificing height for safety is not an expensive safety margin.

Store the tree outside and set in a bucket or other container with water to keep the flow of water moving up the branches even before its brought into the house. Trees stored inside lose water faster than those stored outside because household humidity is usually less than most deserts.

Test tree lights for excess heat before hanging them on the tree.

Particularly, test bulb temperature of light sets bought locally two to three years ago. A large number of imported bargain lights produced excessive heat when used and get hotter with age. Tree lights should only be cool to warm to the touch. Remember hot lights, resting against or near wood or needles will dry the local surface before long. Many recommend using only Underwriters Laboratory approved light sets.

Purchase only artificial trees tested and labeled for flammability. They have large surface areas compared to volume which means rapid burning potential.

Test for excessive current demand by holding the outlet plug or extension cord after its been in use a while to see if it is warm. It shouldn't be. Bringing electricity from two wall sockets to the light strings may relieve this problem.

Place a home fire extinguisher in clear view but not near the tree and insure tree lights are not lit without adults awake in the home.

Last, make replacing smoke detector batteries part of the annual Christmas tree festivities. Toys are great places to place the used batteries. Give the smoke detectors the best batteries.

Enjoy the holidays and avoid the "Coulda, shoulda, woulda's following tragedies.

Exercizing has not been easy for the dedicated

By Carole Preston

Back in the early days of Jane Fonda and Joannie Greggins, before "wellness" was fashionable, a small group on Center banded together at lunch time to exercise. It started in an empty back hangar with participants bringing towels to spread on the cement floor.

In time, the group pitched in to purchase tapes and mats, and were provided with a clock, tape player and locked box on wheels to keep them in. The wheels proved good foresight. Over the past seven years, in true nomad fashion, the box traveled to many places as the group was moved from empty place to empty place. Finally, there was a place where the box could not go and so was left behind as the class moved on.

The size of the class varies from season to season, location to location, and has had as many as 30 people at any one time.

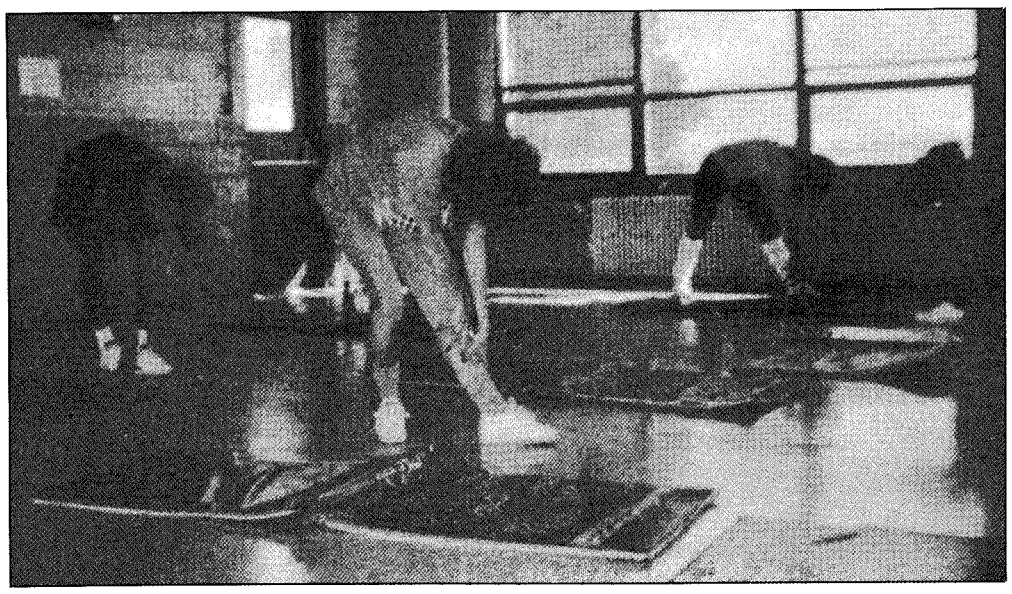
This co-ed group meets Monday, Wednesday and Friday at 11:30 A.M., sharing the space with the Karate Club which meets on Tuesday and Thursday. At present, the group is located on the second floor of the old Crash House on the air field side of the Center.

The exercise has switched from high impact aerobics to low impact. On Mondays the class is taught by a young woman who has been an aerobics instructor. Recently, Morale Welfare and Recreation contributed funds to help the group to purchase a new tape player and tapes.

New members are always welcome. It's a great way to stay flexible, shed Winter lethargy, vent frustrations and feel good about yourself! Come on over!

Recently, Morale Welfare and Recreation contributed funds to help the group to purchase a new tape player and tapes.

For more information contact Janet McGovern, extention 1190.



Class warming up with stretches

Class before workout pictured with Karate Club neighbors.

Instructional television expanding at Center

By John Markow

About three years ago, the Center entered the new, unique, fast-growing training world of Instructional Television (ITV). This training area utilizes the television medium to broadcast live (via satellite) interactive programs presented by leading universities, high-tech organizations and well-known, respected lecturers. Over these past three years, the Center has had more than 1,000 participants.

Center ITV Programming started with short courses. Topics have ranged from Digital Signal Processing to Laser Fundamentals to Dr. Deming expounding the merits of Total Quality Management. These programs are aired during the workday and average three to six hours. Courses are interactive allowing participants nation-wide to phone in questions.

In Fall 1989, the Center began conducting Penn State University's highly regarded Graduate Acoustics Program, a complete graduate degree program in Acoustics. There are two courses per term presented after-hours via live television. This unique program is a combination of television broadcasts and live classroom sessions where the professors actually conduct classes at NADC at least three times during the term.

Most recently, the Center established a graduate ITV program which has course offerings from 29 leading universities across the nation. This program is in cooperation with the National Technological University (NTU). Participating Universities include such schools as Notre Dame, Georgia Tech, Northeastern, Purdue, and Rensselaer. These courses are taped and given to the students for their review at a time convenient to their schedule. All of the Center's Graduate ITV programs are conducted the same as live classroom training with books, homework and administration of tests all leading to a final grade.

Anyone interested in more information about these programs, contact John Markow of the Employee Development Division on extension 1026.

Capt. C. J. Winters and Bettie Simpson-Lawrence accept cash for the Combined Federal Campaign raised by the Model Road Rally from AX1 Don Jernigan, the rally organizer.

Security reminder

Review of items for public release — Classified material shall not be disclosed through any manner of publication or presentation open to the general public. All proposed releases of technical information, whether generated within the Center of received for Center approval, shall be forwarded to Code 044 where a review will be coordinated with the Public Affairs Office (Code 041). Proposed releases of a non-technical nature are also subject to a similar review coordinated by Code 041. Unclassified information must be reviewed to ensure that sensitive unclassified information relating to militarily critical technology is not released inadvertently. (OPNAVEINST 5510.1H AND NAVAIRDEVCENINST 5510.13D)

Model Road Rally brings CFC cash

by Lawrence L. Lyford

On his last day at NADC AX1 Don Jernigan presented the profit from the Model car road rally he arranged on November 3. "With the help of the Center's Fire Company, Maintenance, the Public Affairs Office and the Center's First Class Petty Officer Association the rally was a success," stated Jernigan.

"In fact, things went off so well I'm going to run the next one from my new assignment with VP-26 in Brunswick, Me. Local and national hobby companies were very supportive by supplying door prizes, handouts, magazines and the loan of a computer program to manage the races."

Jernigan believes the Center has the best facility around. The racers had 290 feet of raceway in Hangar 1 with fire hose laid down as the border. "Racers from Bucks, Montgomery and Philadelphia Counties competed in Budget, Prostock, Monster Truck, Stadium Truck and Clod Buster categories with their 1/10 scale models.

"I'll be the first to make money for NADC after I leave. But after five years here, you can't get this place out of your blood," said Jernigan.

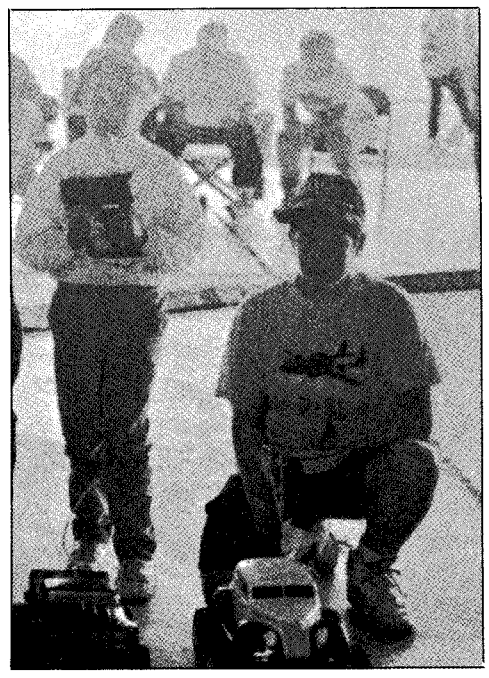


Photo by AX1 Don Jernigan

Shanter La Flame, daughter of AT2 David La Flame competes in rally.

Operation holiday sends "care packages" overseas

By Margaret Vigelis

A number of carrier-based ASW sailors serving in the Persian Gulf this holiday season will be grateful for the thoughtfulness of some NADC personnel.

Bruce Whiteman of the Carrier ASW Module Branch, Code 1012, thought it would be nice if the NADC's CV-ASWM and VS staffs sent their military counterparts holiday "care packages." More than $600 in donations was collected from Center civilian and military employees and contractor personnel. "It was a very generous response," said Whiteman, especially with only fifty people. I thought it was great."

Volunteers virtually cleaned out the local stores of candy, magazines, books, and Christmas cards. They brought their "booty" to the VS Conference Room, where waited many willing volunteers eager to play Santa's elves. Quick-as-a-wink the "care packages" were filled, wrapped, and delivered to the post office so they could speedily get on their way to the Middle-East.

Whiteman thought eveyone felt good about "Operation care package." He stated that all those invloved in the project know people on the ships—they're not just faces and names—they're friends.

Photo by Margaret Vigelis

Elaine Johnson, Eric Wagner and Henry Chang wrap gifts.

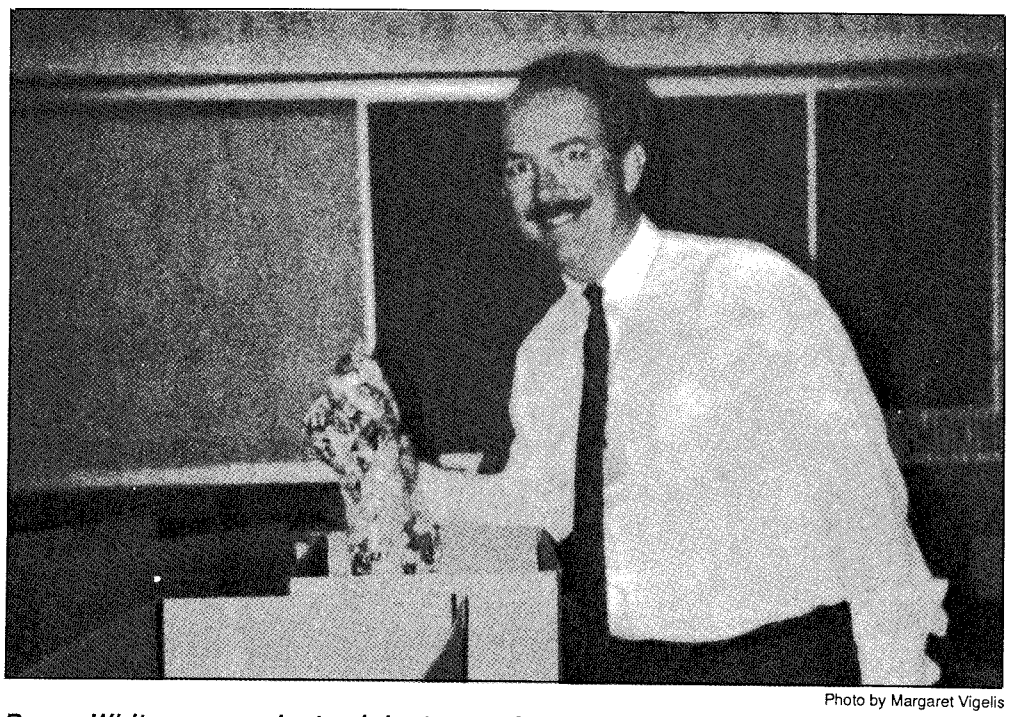


Photo by Margaret Vigelis

Bruce Whiteman, project originator, makes sure someone's sweet tooth gets satisfied this season.

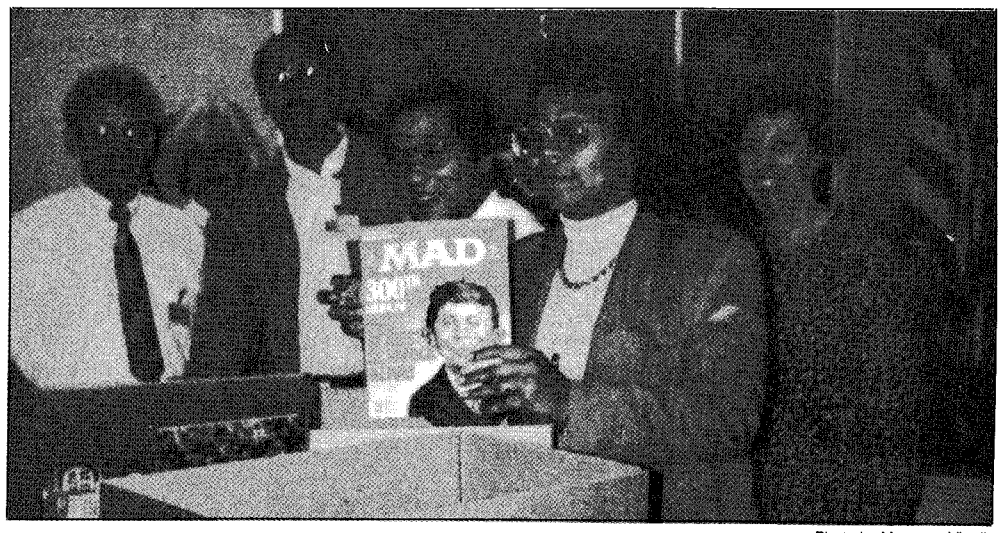


Photo by Margaret Vigelis

Eric Wagner, Ruth Bendzlowicz, Tom Merkle, Bruce Whiteman, Danny Chun, Elaine Johnson, Lt. William Headley and Vivian Di Cristofaro make sure "hohos" go along with the munchies their packing.

Dudley named Blue Jacket

By JO2 Michael Delledonne

"Since I am the most junior person in the division, I feel like I have to prove myself everyday," said HM3 Tujuana Dudley, who was named NADC Bluejacket of the Quarter for the third quarter 1990.

The 22-year-old from Flint, MI, is in charge of physical exams at the Centrifuge. She is also the assistant training petty officer and works with the Biomedical Support Crew who take care of all the human test subjects during testing. "I think the job is very important," explained Dudley. "Not everything we do goes to the fleet, but we must get the proper information so those decisions on what does or does not go can be made. I think we are very essential."

After learning of her nomination, Dudley said it was a bit scary. "I am the new kid on the block," she said. "After I won, I was very excited. I was also kind of surprised because most of the members of the board were from Maintenance and I figured they just didn't know me well enough to vote for me."

Dudley, who has been here a year, enjoys the freedom that the Center allows. "It's not like the regular Navy. You get the opportunity to work with a lot of senior enlisted personnel along with some civilians," said Dudley. "Learning to work with different types of people will help me in the future."

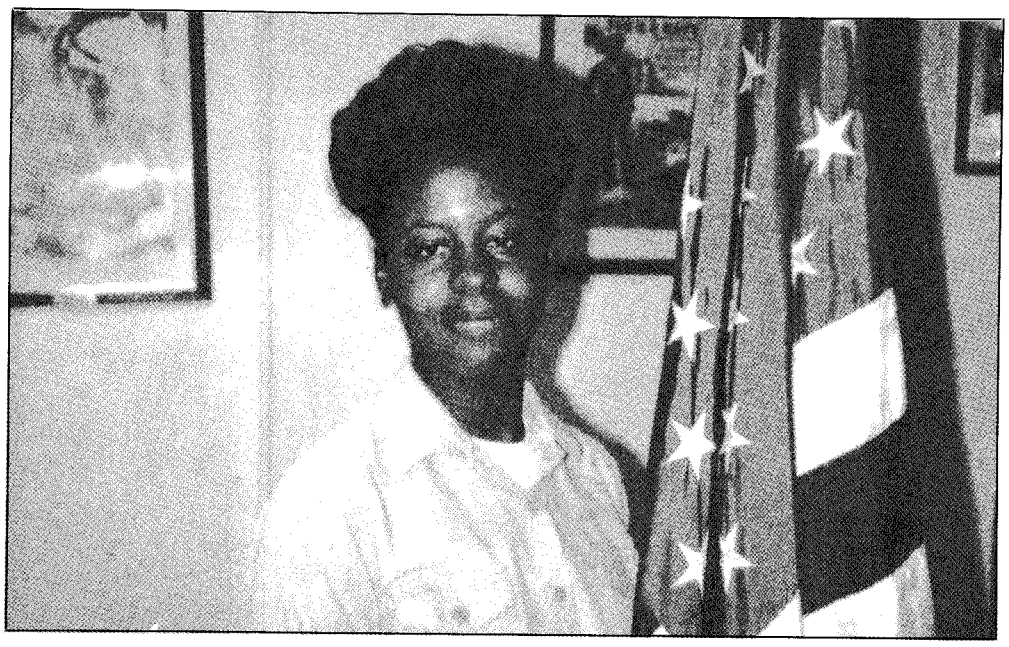
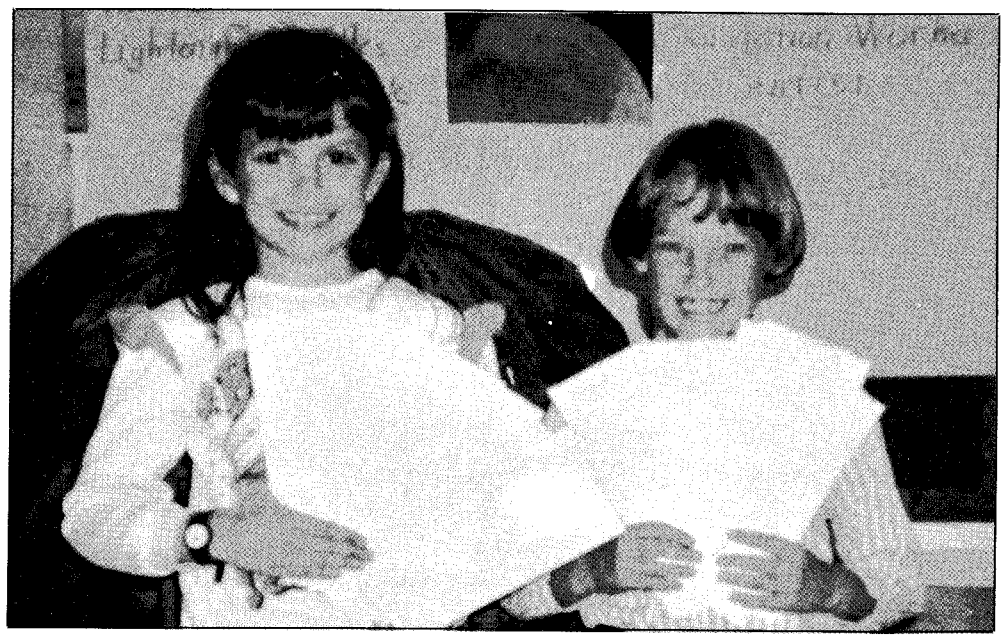


Photo by JO2 Michael Delledonne

HM3 Tujuana Dudley was selected Blue Jacket of the Quarter

Mrs. Hoffa's Butler Elemementary School's second grade class shows letters and pictures they will send to Operation Desert Shield. They were reading about hero's and decided to write to real-live heros.



Dominique Shelton and Jennifer Messick hold Operation Desert Shield envelopes.

Phun Physiology

Space flight, milk, osteoporosis, calcium, and protein — a detective story

By Jolie Bookspan, Ph.D.

Dear Dr. Phun Phys:

I've made my New Year's resolution. I'm going to do something for my bones by getting more calcium. How much milk should I drink?

Signed, 'Resolute Engineer'

Dear Resolute,

You may have noticed that lately you don't hear the dairy industry claim that milk prevents osteoporosis.

Join me on an international detective story - a story that began deceptively simply. Your bones need calcium; milk has calcium. Then questions began creeping in. Why do American vegetarians who shun dairy products have a lower incidence of osteoporosis than the general population? Why do some groups of Japanese, whose calcium intake is historically low, develop osteoporosis while others don't? Why doesn't the very high calcium diet of Eskimos prevent their suffering the highest rate of osteoporosis in the world? Why do astronauts lose bone in space no matter what they eat?

You've probably heard it many times, "She fell and broke her hip." But all too often it was the brittle hip that gave way, causing the fall. The Hunchback of Notre Dame had it. People lose their teeth from it. What causes it?

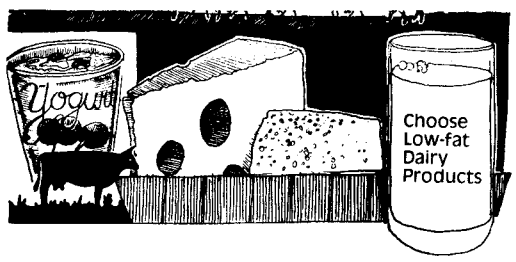
Throughout your life old bone cells are resorption and new bone cells grow to replace them. You exchange between three and five percent of your bone every year. With osteoporosis, there is more bone resorption and probably less bone formation, leaving spaces in the bone that may gradually fill with fat and fibrous tissues.

Osteoporosis comes from the Latin word root 'oss' meaning bone. 'Porosis' means porous. Reduced bone density and increased porosity makes bones fragile, leading to fractures that frequently occur with little or no trauma. The bones of the wrist, hip and spine most often break. Osteoporotic fractures don't heal well, forcing prolonged hospitalization. But why does it happen? And what does taking extra calcium mean to bones?

Bones and teeth owe most of their hardness to the mineral salts calcium phosphate and calcium carbonate. Bones are also nearly 30 percent collagen, a protein that provides flexibility and reinforcement for the minerals.

But when you intake calcium through milk, supplements, or any other source, the calcium does not just find your bones and lie down on them. There must be a metabolic stimulus for calcium to be absorbed from the intestine to the circulation. From the blood, calcium will not combine with phosphorus for bone cell division without other stimuli. Blood levels of hormones, protein, and minerals influence not only how much calcium you will absorb but how much you will excrete. Age related changes of the intestine decreases calcium absorption. That all means that simply increasing calcium intake does not mean your bones will use it.

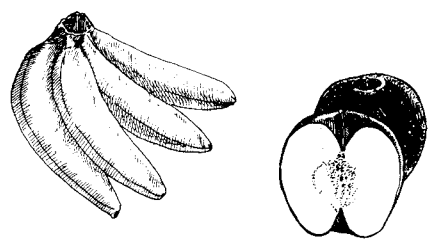
The detective story opens with conflicting and insufficient evidence for a link between calcium intake and bone loss with age. Two separate studies, one of several year's work at the Mayo Clinic and another published in 1986 in the highly regarded Science magazine, found there was no correlation between calcium intake and age related bone loss after bones finish forming in early adulthood. Then researchers at Tufts stated this year that calcium had no effect on preventing bone loss in the first five or so years after menopause.



Another study at Cornell University published in 1989 reported "it was not clear that increased calcium intake has a significant impact on osteoporosis or other chronic diseases that have been linked to calcium nutriture." More work published this year in the Journal of the American Medical Women's Association concluded that calcium intake alone will "neither guarantee optimal bone growth nor protect against bone loss if other critical factors are missing."

The search for these critical factors begins with a trip back in time. A succession of well controlled studies published since 1920 chronicled increased urinary calcium loss from the body by adding meat to the diet. In 1988 a study published by the Center in Mineral Metabolism and Clinical Research in Texas, concluded that calcium excretion due to the animal protein of milk raises the risk of osteoporosis.

With protein revealed as a key character, the next chapter introduces a new role for an old protagonist in the calcium story-Vitamin D, long known necessary for calcium absorption in the small intestine. A 1990 study of osteoporosis at the Kobe University School of Medicine in Japan uncovered three Vitamin D components to calcium deficiency with aging: reduced vitamin D synthesis by the kidney, reduced outdoor sun exposure, and a decline in the function or number of vitamin D-binding receptors in the intestine.



Soon, other members of the calcium story began to crowd the stage: phosphorus, copper, sugar, salt, alcohol and cigarette smoking, caffeine, boron, and lack of exercise.

Phosphorus is necessary for bone formation, but in high amounts relative to calcium it may inhibit calcium absorption. A diet of excessive phosphate and low calcium is a diet high in meat and soda.

Enter two surprise characters. A 1988 study from the University of Ulster, Northern Ireland implicated a mild dietary copper deficiency in osteoporosis in both humans and animals. Other studies previously revealed that high sugar intake promotes loss of copper. Western diets overdo both sugar and dairy. Not only are dairy products some of the poorest sources of copper, but lactose may interfere with copper metabolism. Referring to dairy, the Ulster researchers concluded that "current recommendations for the prevention of osteoporosis may actually be detrimental to health."

Work published in 1982 by calcium researchers Heaney and Recker con-

Continued Phun Phys on page 7

MWR holds holiday mixer

Morale, Welfare and Recreation will sponsor a Holiday Mixer on December 21 with the students of Gwynedd-Mercy College in Montgomery County at the Crews Rest Club. Following a brief tour of the hangar area conducted by Master Chief Valentino the students will go to the club at 7 pm for dancing, food and fun. All active duty military and DoD civilians are welcome to come to the club and get acquainted with these delightful young women. Nuns from the college will act as chaperones. Come and enjoy the holiday spirit. For more information call Recreation Services at ext. 2510.

MWR celebrates New Year's Eve

For the best bargains and the most fun in Bucks County, come to the Crews Rest Club on December 31 for our New Years Eve party, from 8 pm to 2 am. Guests will enjoy a lavish buffet dinner, hor d'oeuvres, party favors, and a bottle of champagne for EACH per person. Dancing to a DJ starts at 10 pm and lasts until the end of the festivities. The cost is $25 per single; $45 per couple, with only advance tickets being sold. For BAR ADMISSION ONLY, the cost will be $9.95 per person in advance and at the door -- this includes party favors only.

A special thanks to all those whose assistance makes our information, tours, events and visits successful — from the engineers, scientists and technicians who share their expertise to those who work behind the scenes before and after the events. Thank you. Those behind the scenes make everything come together. When visitors remember the Center they remember what they saw and who spoke to them. We remember you all.

Civilian and military, we wish your a happy holiday and a great new year.

THE PUBLIC AFFAIRS STAFF

continued from GLOBAL, Page 1.

set of coordinates and depths. These correspond to ocean bottom points which scatter the ping signal to the tracking ship's hydrophones. A series of consecutive pings allows the ships to collect points of equal depth through which level control lines can be interpolated. These, in turn, result in a topographical contour map of a section of ocean bottom.

Until GPS becomes fully operational, accuracy requirements only permit the use of a single ship. Since a single ship maps a narrower portion of the ocean floor and has difficulty mapping both smooth and shallow ocean bottoms it is relatively expensive and inefficient. The dual ship (bistatic) survey system allows mapping a very wide swath of ocean bottom and makes a significant improvement in the mapping of smooth and shallow areas. The end result will be a less expensive and more complete bathymetric map.

Phun Phys — Continued

firmed other researchers findings that urinary excretion of calcium doubles following intake of caffeine.

Three more bad guys often hang around together. In 1989 data from the Department of Clinical Biochemistry and Clinical Nutrition at St. Luke's Hospital in the UK suggested that alcohol may be directly toxic to the cells called **osteoblasts** that build bone. Other studies found similar effects from smoking. Lack of exercise, prolonged immobility, and sedentary lifestyle robs you of bone density. Bone thins and weakens after only a few weeks in a cast.

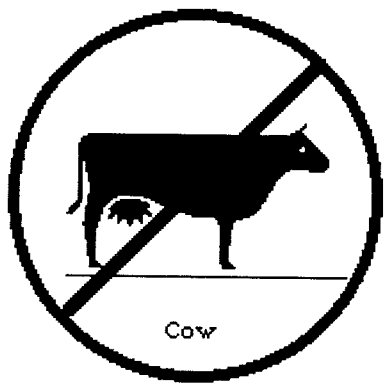
How important is bone density to you right now? Results of a Detroit study by the Bone and Mineral Division, Henry Ford Hospital in 1989 indicated that future incidence of vertebral fractures could be predicted by bone mass measurement. That means a prime determinant of osteoporosis later is bone density now. Peak bone mass increases up to about age 35. After a plateau period you may lose one to three or more percent of your bone each year depending on your food and exercise habits, with men losing more slowly than women. At menopause your bone density will depend on the peak mass reached in adolescence and adulthood, minus the bone lost each subsequent year.

So where are the good guys in the story? Estrogen is one. For women, estrogen supplementation under physician's supervision may be the only way to maintain bone mass in the first five years after menopause.

Exercise is another. When muscles pull on bones during exercise, the physical stress stimulates bone tissue to thicken and strengthen. Beside lifting weights, the most effective exercise is weight-bearing. Weight bearing means you bear all of your own weight while you exercise, like walking, dancing, running, skating, skiing. By contrast you can imagine that bicycling and rowing are not weight bearing. Swimming is the least weight bearing of all activities except zero-gravity exposure during space flight. Bone demineralization is a major consideration in extended space missions.

The dual theme of the calcium story is becoming clear: high calcium intake is less important than calcium loss, and it's you that plays the major role in the calcium story by your food and exercise choices.

A study published in 1987 in the medical journal Lancet reported that 61 percent of calcium in the US diet comes from milk and dairy products. At the same time the medical community increasingly questions the use of milk and dairy products as a calcium source for preventing osteoporsis. Dairy products are a concentrated source of animal protein that increases calcium loss. And all but non-fat items contain saturated fat and cholesterol.



DON'T HAVE A COW, MAN

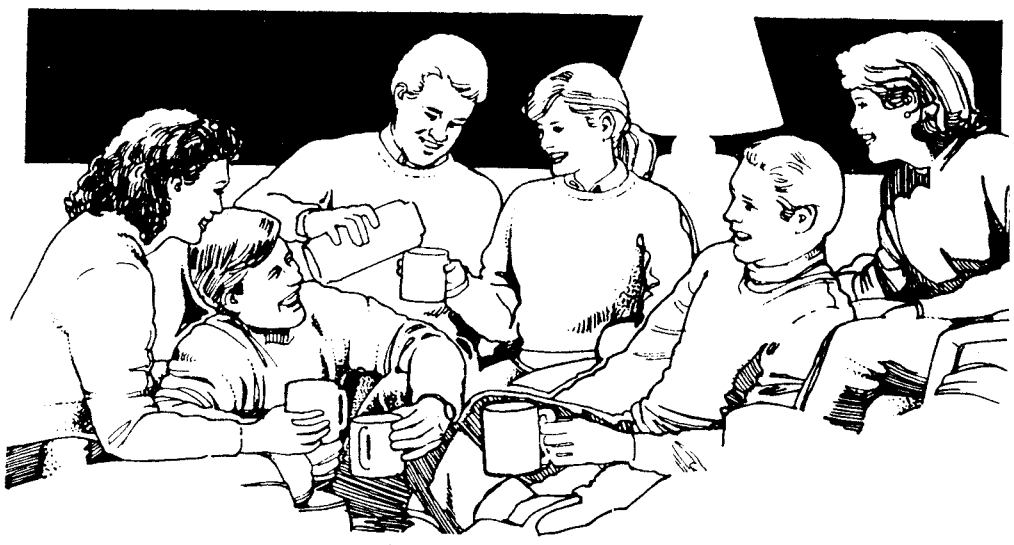
What are the best sources of calcium? Think. Where do cows get theirs? You can't digest grass, but dark green vegetables like spinach, collards, and kale have calcium. Broccoli has more calcium per calorie than any other food. Tofu is high calcium and a good plant protein. Fruit has calcium. So do almonds and sunflower seeds.

Better yet, fruits, vegetables, nuts, and legumes have boron. Milk has little boron, and meat and eggs have none. The element boron may also participate in preventing osteoporosis.

So the detective search, while not solved, unearthed important clues. The populations in Japan whose low protein intake comes primarily from plant protein have low rates of age related osteoporosis, even though their calcium intake hovers around 400 mg per day, half that recommended in the United States. In their genetic relatives eating a modern diet, high phosphate, salt, and protein intake aggravates calcium deficiency n old age. Eskimos have a very high calcium diet but their high sodium and protein fish/meat based meals are the likely suspect in their world's highest rate of osteoporosis.

Calcium is important. But not in isolation. To help calcium connect with your bones get plenty of weight-bearing activity and reduce alcohol, caffeine, and smoking. Avoid high sugar, salt, and protein food, and emphasize non-animal protein. Get your calcium from plant sources. Milk may be good for baby calves, and mother's milk for baby humans. But for preventing osteoporosis the studies seem to say, 'don't have a cow, man.'

Send questions to Phun Physiology to: Editor, Reflector, Code 041.

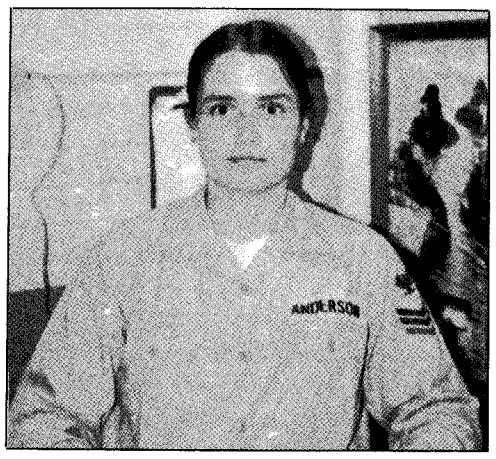


Anderson selected as SOQ

By JO2 Michael Delledonne

"I was grinning from ear-to-ear and was obviously very happy," said AX1 Donna Anderson on being named NADC Sailor of the Quarter for third quarter 1990.

"I was really surprised because I haven't been here that long," said Anderson. "There are other people that have been here longer and are more visible, but I have a lot of good, quality people working for me. To say that I did this all by myself would be totally wrong."



AX1 Donna Anderson

Originally from Lanham, MD, Anderson said her job is to keep the planes flying. "If a plane is down for maintenance reasons, I send the people out to get it fixed," she said. "I think what I do makes a big difference because it's very important to keep the aircraft up."

The 29-year-old explained she will always find working at the center very interesting. "Just because I'm here for three years, doesn't mean I'll be in this particular office the whole time. If you get to the point where you start to get bored with what you're doing, you can put in a request to do another job and not have that held against you," she said. "In fact, variety is what the selection boards are looking for. They want to see if individuals have stayed in the same position all the time or if they have been willing to tackle different assignments. I want to do as many jobs as I can and the Center allows me that opportunity."

Center water supply is safe

By Lawrence L. Lyford

In mid-November a breakdown in a pump on the Center's main water supply led to traces of bacteria in tests conducted at the completion of the repair.

As a precaution, the commander issued a notice to boil water and to purchase bottled water until there wasn't even a remote risk to employee health.

"Though there was a replacement pump on hand, it took time for a contractor to recover the first from the 400 foot well. Doing this, he discovered the supporting cable needed to be replaced. A well not used for a long time was pressed into service because of the additional repair time required. An operator test indicated traces of bacteria and the appropriate people were notified immediately," said Mike Hunter, the Environmental Programs' Manager, Code 8303.

By mid-November a team was impanelled by the Associate Technical Director, A. Atkinson, consisting of J. Clay, Code 80A; Bettie Simpson-Lawrence, Code 031, Labor Relations; Mike Masington, Code 092, Safety Officer; CDR Voge, Dispensary, C. Leyrer, Code 6014; B. Sposato, President, AFGE Local 1928.

The panel evaluated the current safety of the water and assess the continued need for bottled water and additional testing.

Captain C. J. Winters directed for water samples to be taken by and independent testing company certified by the Commonwealth's Department of Environmental Resources. They have confirmed no bacteria was present in the system. Subsequently, the Bucks County Department of Health informed the Center the water was safe to drink.

This test was in addition to routine monthly tests for bacteria and volatile organics.

The panel sought tests at the well heads, and heavy use areas. The results were all within all safety standards according to Hunter. The panel will now examine color and taste to improve overall water quality.

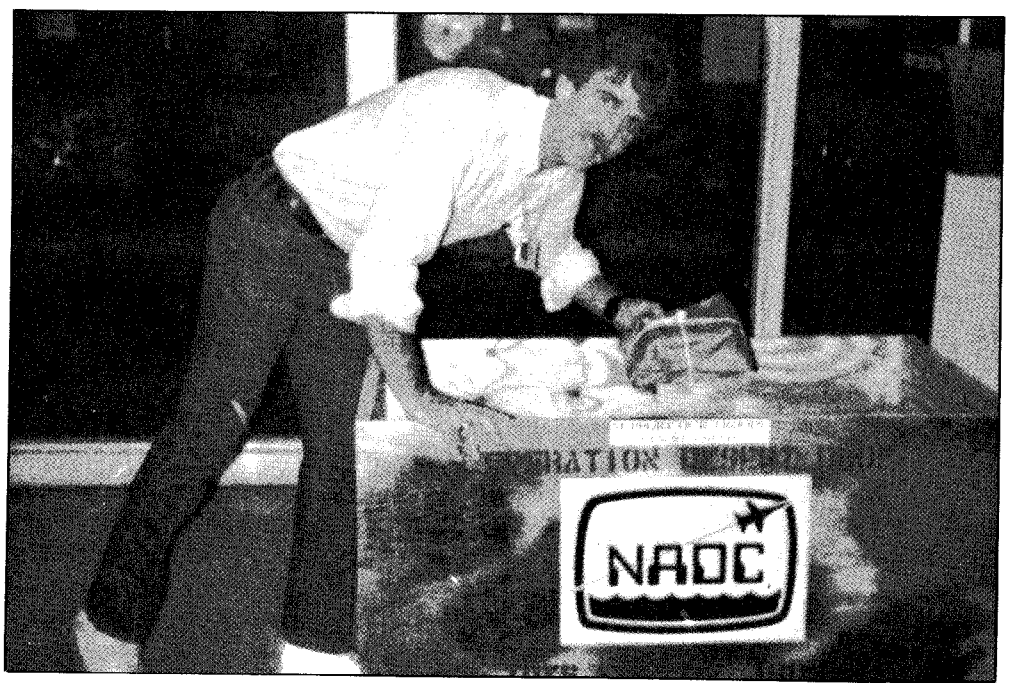


Photo by JO2 Michael Delledonne

Neil Wolfe, Chairman of the NADC Veteran's Committee checks contents of Operation Desert Shield Dropbox.

SPORTS WORLD SPORTS WORLD SPORTS WORLD

VS shuts down VP 14-0 in annual Turkey Bowl

By JO2 Michael Delledonne

They stood toe-to-toe for four quarters of hard hitting football, but it was two quick touchdowns that led to VS Projects' (VS) 14-0 victory over VP Projects (VP) in the sixth annual Turkey Bowl. The series now stands tied at three games a piece.

On the cold, brisk, windy day, VS got off to a very important early lead. "On our first possession, we ran three plays and scored," said AT2 Joe Emperly. "The defense came out and held VP to three downs and out. The offense took over and again pushed it across for another score. It was 14-0 early in the first quarter." "After that," said VS's AW2 Jeff Solomon, "it was just good, tough defense."

According to VS's AWC Dwight Myllenbeck, "Our offense's deception played a significant part. It really threw them off. Our quarterback would have his back to the defense and with all the play fakes, they just didn't know where the ball was going."

"Toward the end, VP was just going for the score every down because they didn't have anything to lose," explained Solomon.

VP's AW2 John Hatfield said practice made the difference. "VS was a little more organized than we were. The defense gave up the two quick scores and our offense just never got on track."

"I don't know if it was the turning point or not, but when VS scored those two quick touchdowns it forced us to immediately play catch up," explained Hatfield.

Both teams are already looking forward to next year. "We were playing for pride," said VS's Myllenbeck. "Nobody wants to lose this game. We are looking forward to defending our title."

"I have already dreamed about the rematch," said VP's Hatfield.

Photo by AX1 Don Jernigan

AW2 John Hatfield cuts left to pass opposing defensive end during annual Turkey Bowl. VS defeated VP 14-0.

Bowlers power along to complete half season

By Tom Reiter

The B Division has turned topsy-turvey. Would you believe the Goofers are struggling to stay out of last place? Also at the bottom are the Destroyers, and Rolling Thunder, teams that have been League powerhouses. It's stale news, but we didn't make last month's publication and I wanted to acknowledge some of our fun and games - Halloween night brought out some Ghosts and Gobblins. Winning the best costume design this year were **Gina** (Queen Bee) and **Scott** (Bowling Pirate) **Fowler.** We also held our annual Turkey Shoot, bowling for Genuardi gift certificates. This year's winners were **Pete Huber** with a 469 series and **Barb DiLemmo** with a 446. We wish to extend **sincere holiday greetings** to all our bowlers and readers. Have a safe and happy season.

Congratulations to **Peg Clark's**, A Division, Lucky Strikes (36.5 - 15.5) and to **Jim Campana's**, B Division, Nine Pins (38 - 14) who are, at press time, leading the League. A hearty welcome to our new team, the High Time, captained by **Jim Maginn**.

With four nights to go in the first half, the standings and highest individual scores bowled by each team are:

A DIVISION

Lucky Strikes	Peg Clark 190	Art Duhaime 199
Spare Us	**Joann Coughlan 216**	Dick Coughlan 211
	Terri Grau 211	Bob Bollard 205
Alley Cats	Patty Aspinall 192	Kevin Ryan 212
		Jack Eyth 204
Red Winos	**Carla Dragon 216**	George Dobrowolski 212
	Claire Bayer 200	Ernie Wykes 207
		Bob Andrews 207
From The Gutter	Denise Eck 210	Randy Yeager 183
Les Champignon	Beth Summerlin 162	**Dave Oliver 233**
		Ed White 232
		John Harris 217
Oh Split	Terese Wells 178	Randy Allen 204
		Bob Helm 203
Dynamic Duos	Gina Fowler 185	Scott Fowler 197
Tin Pinners	Colleen Sweeney 181	Joe Emperly 225
		Leo Hoffman 203
Bullshooters	Eileen Cunnane 201	Robert Smiler 178
Ten Pins Standing	Lori Strobel 163	Danny Chun 221
Pinguins	Lynn Fratrik 200	Bill Bradley 187

B DIVISION

Nine Pins	Linda Stickney 215	Jim Campana 234
		Bob Kittner 214
		Mike Devlin 203
Eleventh Frame	**Kathy Sedlock 246**	Ted Weathers 227
		Phil Richardson 203
		Chuck Halko 201
Magic Markers	Andrea Sicher 225	Ed Beach 203
		Larry Sicher 202
Screwballs	Elsie Appel 187	Jack Horning 229
		Dave Stewart 210
		John Ryan 200
Steve's Side Show	Jamie Jerdan 179	Jim Williamson 236
		Wayne Jerdan 200
Gutter Dusters	Mary Vaughn 196	**Wes Gleason 250**
Warveyhallbangers	Bernadette Connison 172	Harold Wyzansky 199
Big Spenders	Helen Catto 177	Neal Polin 198
Rolling Thunder	Sharon Robinson 189	Mike D'Aulerio 223
		Joe McFadden 211
		Matt Meer 206
		Bob Reichert 200
Destroyers	Lorrie Wallace 193	Dave MacNeill 231
Goofers	Lorraine Reidinger 199	Al Knobloch 231
		Leo Markushewski 209
High Time	Colleen Cerino 134	Buzz Cerino 175

NADC eliminated in regional flag football tournament

By JO2 Michael Delledonne

It came down to the last play of the game. Two seconds left on the game clock and H-5, from the USS CONSTELLATION, had one prayer trailing 20-15...a "Hail Mary" pass. Unfortunately for NADC, the prayer was answered. The high arcing pass went through a maze of Center defenders and into the waiting arms of an H-5 receiver for a 21-20 victory during the Mid-Atlantic Regional Flag Football Tournament held at the Philadelphia Naval Shipyard.

"Honestly, it's a very disappointing loss," said NADC coach Mark Hisert. "We had the people there to stop the play, but they got tangled up going for the ball and somehow it got through."

Like two great fighters, both teams hammered at each other trying for the knockout blow. NADC trailed early, but continually came back. In the second half with only two minutes left and trailing 15-13, NADC drove the length of the field for their last score to take their final lead 20-15 with 38 seconds left. "We should have tried to run more time off the clock," said Hisert after watching H-5's miracle finish.

In the second game of the double elimination tournament, Naval Hospital Philadelphia held on to a 15-12 victory over the Center.

"That first game just took all the steam out of us," said Hisert. "We were just emotionally and physically drained. We had six guys going both ways, both games and physically that's very demanding."

NADC concluded the season with an 8-4 record. "The season went very well," noted Hisert. "We had a lot of talent on the field this year. Hopefully, that will help us for next year."