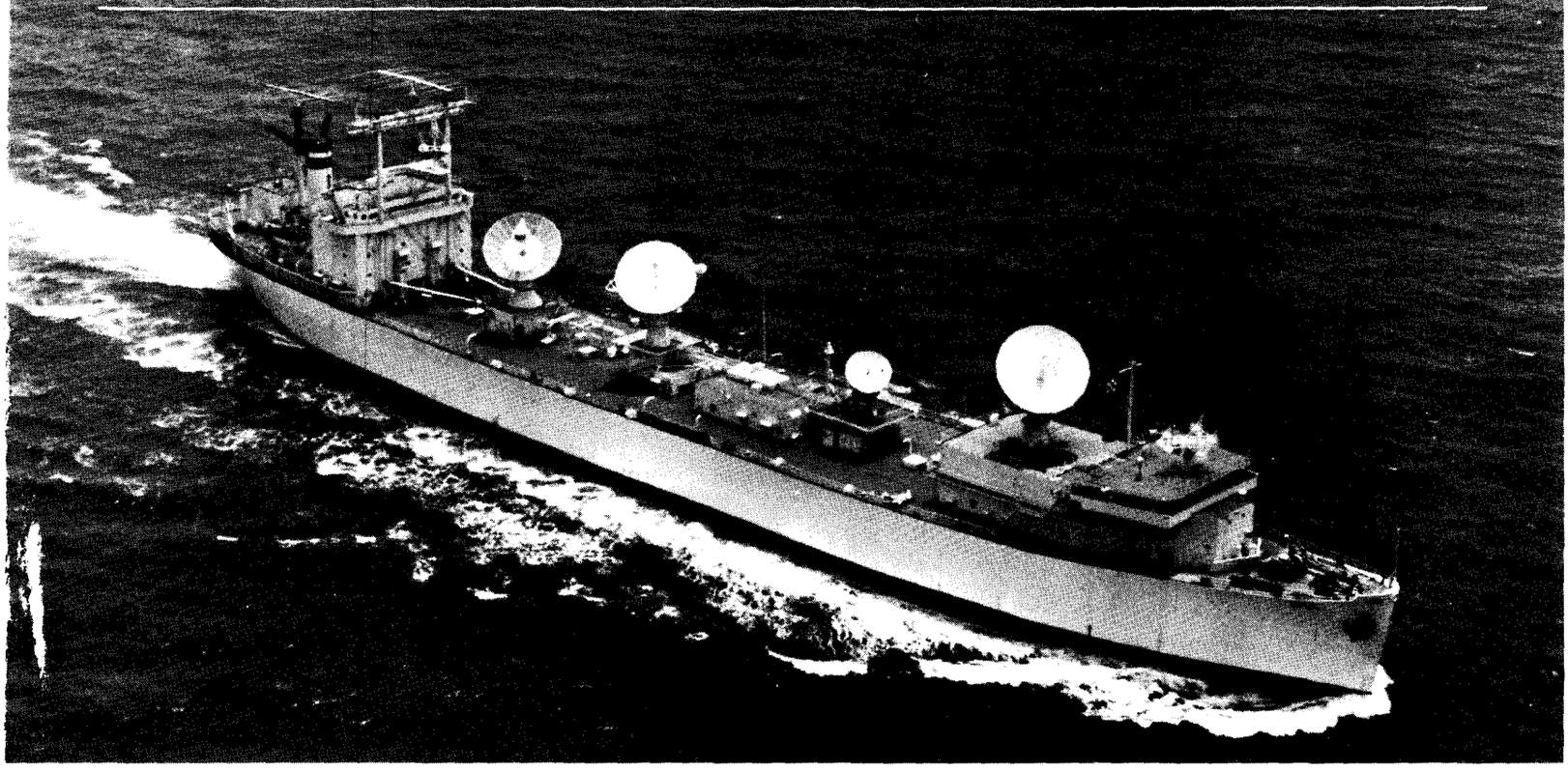
GODDARD NEWS April 1973 Vol. 21, No. 1



THE USNS VANGUARD, Goddard's sea-going tracking station, has sailed to a temporary port in Argentina to support the upcoming Skylab mission.

Vanguard to Argentina for Skylab Support

Goddard's sea-going tracking station, the USNS Vanguard, sailed for its new temporary home in Mar Del Plata, Argentina, on March 28. The ship has long been a familiar landmark in its home Port of Canaveral, Florida.

The ship, a part of NASA's Spaceflight Tracking and Data Network, was moved to the new site for support of the forthcoming Skylab missions. Originally designed to provide tracking and data acquisition for the Apollo flights, the Vanguard played an important role in all the flights of the Apollo program, in addition to launch support of a variety of earth-orbiting satellites from its Port Canaveral berth.

The decision to move the Vanguard to its new home is a result of the need for a tracking station located in the western sector of the Southern Hemisphere to obtain total coverage during the Skylab operations. NASA felt that it was not feasible from both cost and time consideration to install a ground station for such a short duration (approximately 9 months) and therefore decided to use this unique mobile station since it was immediately available and equipped for this task. The Vanguard's role in Skylab will be essentially the same as the land based tracking stations in NASA's worldwide tracking network which is to provide two-way flow of information and communications between the spacecraft and Mission Control in Houston, via Goddard.

Vanguard has a technical crew of approximately 95 employees of the Bendix Corporation and a marine crew of 85 who are employees of the U.S. Navy's Military Sealift Command.

Otto Thiele is Goddard's Vanguard Station Director.

Dr. Allen Presents Snoopy Awards

On March 16, 1973, 168 members of Goddard's government/industry Apollo team received the official astronauts' "thank you" for their roles in insuring the success of NASA's manned missions.

The occasion was the Manned Flight Awareness awards ceremony when scientist/astronaut Dr. Joseph P. Allen was on hand to present awards in the Building 8 Auditorium. Silver "Snoopy" Pins and letters of appreciation went to 42 men and women whose professional dedication and support "greatly enhanced flight safety and mission success during the United States Manned Lunar Landing Project Apollo." An additional 126 members of 22 teams from Goddard and industry received certificates of appreciation.

The ceremony opened with a welcoming address by H. William Wood, Associate Director for Network Operations. Goddard Director Dr. John F. Clark made the opening remarks, and Tecwyn Roberts, Director of Networks, spoke on "Awareness, Its Role in Space Exploration."

Individuals receiving the silver pins depicting the "Peanuts" Cartoon pooch "Snoopy" as the watchdog of manned flight safety were: Elijah W. Alexander, Ralph N. Banning, Don S. Beaulah, D.S. Beyer, Michael R. Cassady, L.L. Dudenbostel, Robert E. Dunham, Mary C. Eichelberger, Judith K. Elswick, Joseph J. Gancie, Thomas R. Gary, Martin L. Hailey, Larry E. Hare, Arthur "Hap" Haszard, Marshall H. Heim, Thomas A. Hetzel, William Lee, Charlie James Leverett, Dennis E. Maddy, Paul R. Masulis, Raymond Mazur, John C. McDowell, Dorothy M. Meadows, Warren J. Mitchell, Charles F. Morris, Joseph V. Mulvihill, Howard L. Naslund, Jerry L. Navratil, Raymond H. Newman, David J. Pine, Charles A. Renn, Jr., Kenneth E. Sanderson, Edward S. Shaffer, James P. Shaughnessy, Kay M. Small, Carl A. Smith, Jeanette Smith, Jerome Teles, Lester H. Wentz, Jr., Richard L. Williams, and Lawrence B. Zeigenfuss.

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SNOOPY AWARDS . . . From Page 1

Group awards went to: the Bendix Aircraft Maintenance Team, the Goddard Building Electrical Maintenance Team, the Goddard Engineers Maintenance Team, the CSC CADFISS Operations Team, the C&P NASCOM Support Group, the CSC Computer Mission Operations Support Group, the COMSAT Operations Team, the COMSAT Earth Station Teams at Andover, Brewster, Etam, Jamesburg and Paumalu; the Bendix Flight Engineers Team, the UNIVAC 494 High Speed System Group, the UNIVAC 494 Low Speed System Group, the Bendix Ground Communications Coordinator Team, the AT&T Longlines Communications Support Group, the Goddard Network Central Computing Support Group, the Goddard Network Operations Managers Group, the Goddard Planning Data Generation Group, the Goddard Skylab Simulator Project Team, the CSC System Assurance Team, and the Goddard Trajectory Analysis Program Team.

Dr. Joseph P. Allen, who presented the awards, was selected as a scientist/astronaut by NASA in August of 1967. He was a support crewman for Apollo 15, serving in the capacity of mission scientist.

Selection of the awardees was made through the Networks Directorate Manned Flight Awareness Council. Persons who planned and organized the awards ceremony were: Turner Wiley, Council Chairman; Robert T. Barnes, Robert D. Miller, Walter I. Adams, and James G. Disharoon.

SUSAN E. FRAZIER of UNIVAC accepts her Snoopy Certificate of Appreciation from Joe Allen, Scientist/Astronaut for her excellent performance in support of NASCOM's message switching computer.

DR. R. C. BARTHLE of the COMSAT Corporation accepts Snoopy Certificates of Appreciation from Scientist/Astronaut Dr. Joseph P. Allen on behalf of the Corporation's five Earth Station Teams.

TURNER N. WILEY of the NASA Communications Division beams as Goddard's Queen Linda Veitch places the surprise award of the Silver Snoopy Pin on his coat lapel. Looking on with approval is Joe Allen, who had just presented the award on behalf of the astronauts. Mr. Wiley was cited for the care and effort he demonstrated in performance of his duties as the Goddard Space Flight Center Manned Flight Awareness Coordinator.

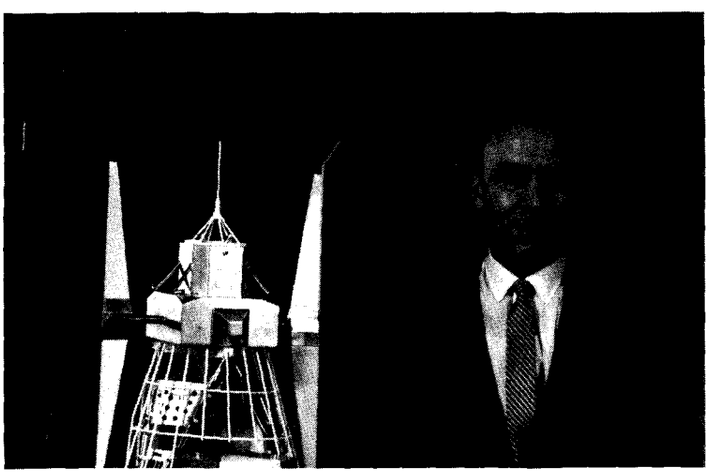
ELIJAH W. ALEXANDER of the Bendix Field Engineering Corporation receives his Silver Snoopy Pin and Certificate from Astronaut Joe Allen. Alexander was cited for his work in monitoring mission critical documentation for the tracking network.

AT A SPECIAL LUNCHEON, arranged by Dr. Clark for Dr. Allen, invited guests enjoy the food and sociability provided at the affair prior to the ceremony. Seated, from left are Linda Veitch, Goddard Queen; Dr. John Clark, Director; Turner N. Wiley, Chairman, Networks Directorate MF Awareness Council; Tec Roberts, Director of Networks; Dr. Isadore Adler, Space and Earth Sciences Directorate; Dr. Joseph P. Allen, Scientist/Astronaut; in the background is Robert D. Miller, Council Member (second from left) and Bill Wood of the Networks Directorate who was Master of Ceremonies (third from left).

GOODARD'S MUSIC AND DRAMA (MAD) COMBO furnishes a musical rendition as background for the Awards Ceremony. From left are Bill Boyer, Drums; Gil Mead, Piano; Tom Cherrix, Flute; and Tom Lynch, Guitar.

CCIR STUDY GROUP MEETING. The U.S. Study Group 7 of the CCIR (International Radio Consultative Committee) held its first meeting this year on March 30 at Goddard. The purpose of the meeting was to prepare documents and to determine the United States position relating to worldwide service of standard frequency and time-signal emissions for the final International Study group 7 meeting to be held early next year in Geneva. The meeting was chaired by Hugh S. Fosque of OTDA at NASA Headquarters. Mr. Fosque was named the Chairman of the U.S. Study Group 7 in 1969. Attending the meeting (in alphabetical order) were: R. E. Beehler of the National Bureau of Standards, Andrew R. Chi of Goddard, Dr. R. L. Duncombe of the U.S. Naval Observatory (USNO), Dr. R. Glenn Hall of USNO, Leonard B. Hanson of MIT, Harris F. Hastings of the Naval Research Laboratory (Ret.), Ralph F. Haupt of USNO, Jean D. Lavanceau of USNO, V. R. Lester of the Hughes Aircraft Co., Frank D. Lewis of the James Millen Manufacturing Co., Charles V. Lundstedt of Goddard, Harry E. Peters of Goddard, P. Kenneth Seidelmann of USNO, Frederick Sera of the Commerce Department, Harold T. Sherman of the U.S. Coast Guard, R. L. Sydnor of the Jet Propulsion Laboratory, Ralph E. Taylor of Goddard, Dr. Gernot M. R. Winkler of USNO, and Dr. Edward Wolff of Goddard.

Wilfred Scull Receives Space Club Award



Wilfred E. Scull

Wilfred E. Scull, Goddard's first Project Manager of the Earth Resources Technology Satellite, has received a special award from the National Space Club.

The award honoring him as the Outstanding Astronautics Engineer of 1973 was presented at the club's annual Robert H. Goddard Memorial Dinner in Washington, D.C., on March 9.

The citation read, in part, "To Wilfred E. Scull for his outstanding leadership from decision to fruition of the Earth Resources Technology Satellite Project."

The first ERTS was launched on July 23, 1972 and has revolutionized the study of the earth's resources from orbit.

Mr. Scull first joined the Goddard staff in 1959 when the Center was being formed. He was Project Manager for ERTS from the project's inception until taking his present post as Chief of the Mechanical Division in November of 1972. Before ERTS, he was for many years Project Manager of the Orbiting Geophysical Observatory series of spacecraft.

He came here from the Lewis Research Center.

NASA ADMINISTRATOR Dr. James C. Fletcher presents Goddard's SAS Project Manager, Mrs. Marjorie Townsend, at the 13th Annual Federal Woman's Award dinner. Mrs. Townsend was one of six women in government to receive the distinguished award. Presentation was made at a dinner March 6 at the Shoreham Hotel.

ERTS Team Honored

Dr. John F. Clark
Director, Goddard Space Flight Center
National Aeronautics and Space Administration
Greenbelt, MD 20771

Dear John:

The American Society of Photogrammetry presented their annual Photographic Interpretation Award to the NASA Earth Resources Technology Satellite Team. This award, represented by the enclosed Certificate, is in recognition of the important contributions this team made to the Photogrammetry Society's area of interest.

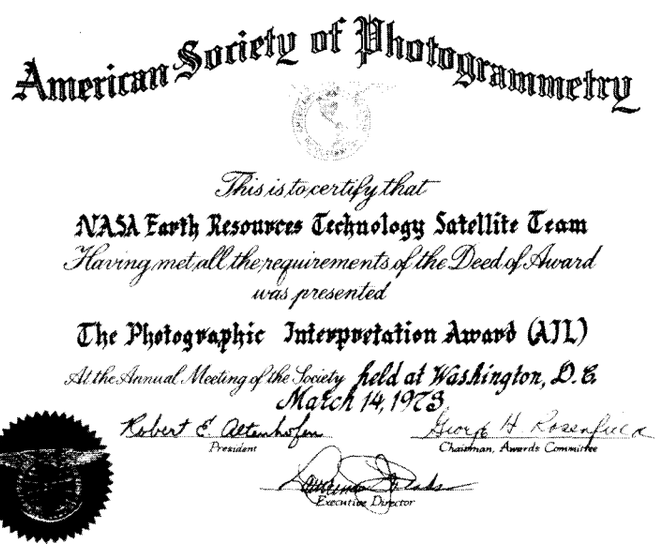
The participation of your organization as a team member contributed significantly to the success which has been achieved thus far, and the recognition represented by the Award is richly deserved.

I extend congratulations to each member of the NASA Earth Resources Technology Satellite Team for an exceptionally professional accomplishment.

Sincerely,

Charles W. Mathews
Associate Administrator
for Applications

Enclosure



American Society of Photogrammetry

This is to certify that
NASA Earth Resources Technology Satellite Team
Having met all the requirements of the Deed of Award
was presented
The Photographic Interpretation Award (AJL)
At the Annual Meeting of the Society held at Washington, D.C.
March 14, 1973

President — Chairman, Awards Committee — Executive Director

Presidential Classroom Here

"Everyone in Goddard is so friendly and enthusiastic about their work."

"Goddard isn't anything like I envisioned. I thought it would be all military, but it's so open, you can ask anything you want and get an answer."

"The Earth Resources program is even more exciting than lunar exploration."

These were typical of statements made by participants in A Presidential Classroom for Young Americans who visited Goddard during February and March. Over 1400 students, from every state and many foreign nations, came to the Center as part of a one-week educational and information experience in government and politics in Washington, DC.

The "day" at Goddard featured a welcome by either Dr. John F. Clark or Dr. Michael J. Vaccaro and presentations by Center personnel on various projects and NASA programs.

The students, in groups of about 240, visited the Center on six different Fridays. They were briefed on Earth Resources by Dr. Paul Lowman. Drs. Isidore Adler and John O'Keefe discussed lunar exploration results, and Howard Galloway, along with Y. Sandarajan and N. Narayanan, informed the groups of the ATS-F educational TV experiment scheduled for India. Drs. Gil and Jaylee Mead jointly briefed the group on Mars and Jupiter. Charles Boyle of the Special Programs Office, concluded the presentation sessions with a discussion on "Some Effects of Space Research on Society."

In addition to the presentations the students toured the Center and dined in the Building 1 Cafeteria. About 20 Goddard employees from a variety of offices and projects dined with the students each session.

Elva Bailey and Richard Crone coordinated the visits. Angie Whitaker is Executive Director of A Presidential Classroom for Young Americans.

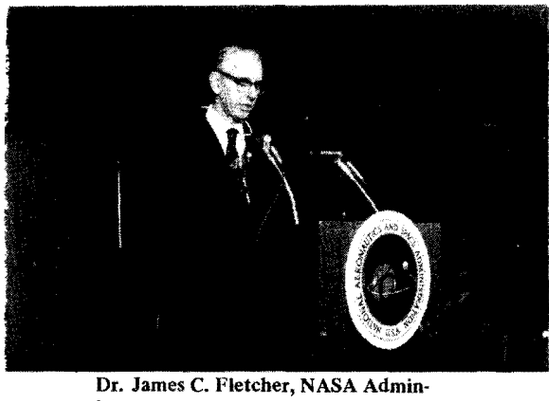
IN OPSCON, Ed Ambrose, Operations Director, explains the display panels and consoles to Scott Brinkman, Minster, Ohio and Mike Anderson, Copperton, Utah. Schools, service clubs or the students themselves paid for their one week visit to Washington.

AT BUFFET LUNCHEON, Howard Galloway (left) chats with two coeds who participated in the Classroom. Mr. Galloway is with the ATS Project Office.

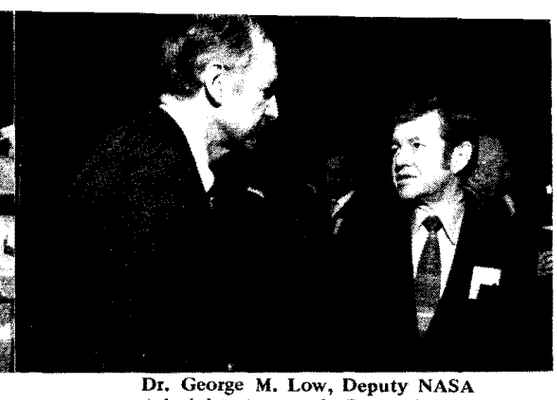
DR. JOHN F. CLARK displays a model of the ATS-F to students. They are (left to right) Herbert Tietje, Burt, Louisiana; Janine Olson, Pocatello, Idaho; Patty Newland, Riverdale, Georgia; and Vince McGinty, Hartford, N.Y.

IMPROMPTU DISCUSSIONS like this one with Dr. Paul Lowman usually followed a presentation or took place during a break. Goddard is the only federal research laboratory visited in the Washington metropolitan area by the Presidential Classroom participants.

STUDENTS WERE INVITED to ask questions. Criticism was invited by all the speakers. Charles Boyle, Special Programs Office, discussed the social implications resulting from space exploration.



Dr. James C. Fletcher, NASA Administrator



Dr. George M. Low, Deputy NASA Administrator, and Dr. John F. Clark, Goddard Director

Highlights of the ERTS Symposium

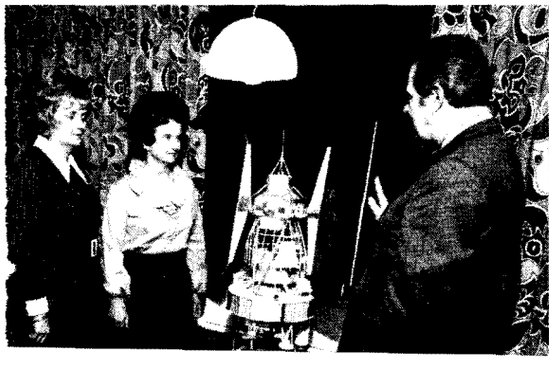
The accomplishments of Goddard's highly successful Earth Resources Technology Satellite were the topics of over 100 papers presented at a special symposium at the Sheraton Inn in New Carrollton, Maryland, this March.

On this page are pictures of the event by Goddard photographers and artist Maceo Leatherwood of the Graphic Arts Branch.

An upcoming issue of the *Goddard News* will carry a special section on ERTS results.

Bessye Grace, Congresswoman Marjorie Holt, and Charles Matthews, NASA Associate Administrator for Applications

Dr. Nicholas Short, Dr. George Pieper, and Congressman James Symington



DON G. PETTINGILL (left), Coordinator of Off-Campus Studies at the Model Secondary School of the Deaf, chats with Paul Bisbing. Paul is one of three MSSD students who are working part-time in the computer room of Building 1.

ORGANIZERS of Goddard's sign language course are (from left) Gladys Chasnoff of the Organization and Employee Development Branch; Willard J. Madsen, Associate Professor of English and Coordinator of Sign Language Programs at Gallaudet; instructor Julia Mayes, of MSSD; and Robin Hammond, of Goddard's EEO Office.

INSTRUCTOR Julia Mayes (standing) of the Model Secondary School for the Deaf in Washington, D.C., teaches a sign language class here at Goddard.

DOROTHEA MADSEN is a computer technician in the Business Data Branch.

Goddard's

Some co-workers say Paul Bisbing has an advantage in the noisy computer room in the basement of Building 1. He can't hear the distracting racket made by rows and rows of operating computers.

Paul is one of three high school students from the Model Secondary School (MSSD) for the Deaf in Washington, D.C., who are working one day a week as computer operators in the Space and Earth Sciences Computing Center. He and his fellow students—Edwin Bergstresser and Kris Gigliotti—are learning on the job with the help of Clarence Russell, a Goddard computer operator since 1962.

Mr. Russell and his student trainees are deaf. They are part of a group of deaf workers who are making a valuable contribution to Goddard's programs. Others include Vilas Johnson, Dorothea Madsen, Garrod Shaw, Gary Burgess and Tom Mills. A tenth employee, Co-op Student Jeoffrey Lowe, recently completed his final Co-op period here and has returned to the National Technical Institute for the Deaf in Rochester, New York, for his final semester.

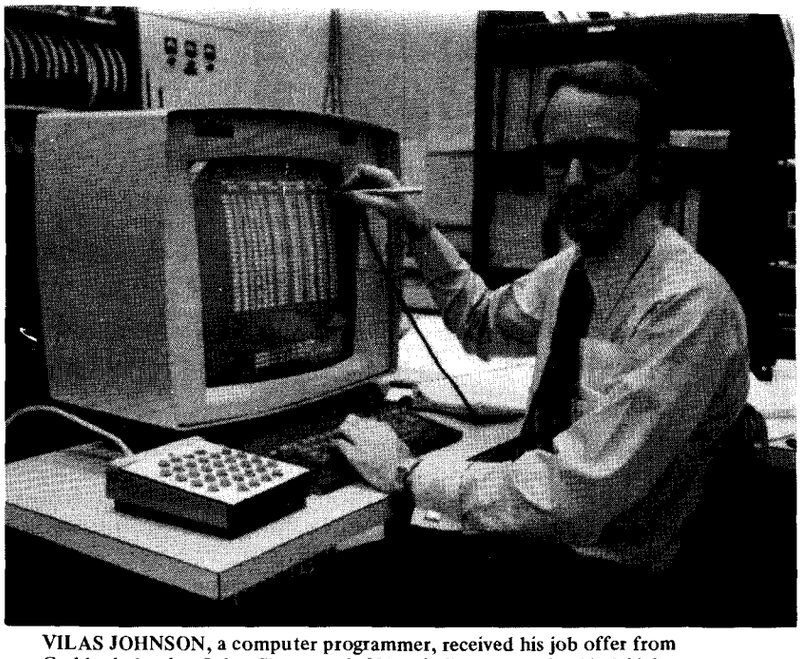
Because communication has always been a problem for deaf employees a sign language course has been started at Goddard. Arranged through the efforts of Robin Hammond of the Equal Employment Opportunity Office and Gladys Chasnoff of the Organization and Employee Development Branch, the course is now giving 30 employees the basic skills they need to communicate with the deaf. Julia Mayes from MSSD is class instructor. The course was arranged through Willard Madsen, Associate Professor of English and Coordinator of Sign Language Programs at Gallaudet College in Washington, D.C.

Goddard's deaf employees are enthusiastic about the sign course. Vilas Johnson comments that, "In some ways I felt we were treated as second-class employees in the past. The sign language class is really wonderful. At last we are accepted."

Dorothea Madsen adds, "Communication on the job is just as important for a deaf worker as for anyone else. Often this is lacking because it is not easy to use pad and pencil all the time and lipreading is limited and often a lot of it is guesswork. The sign course will mean more and better communication for all deaf workers at Goddard."

Most of Goddard's deaf employees are working in computer-related jobs. First to join the Center staff was Vilas Johnson who began his career in 1959 as a mathematician at the Redstone Arsenal in Alabama where he helped to test the accuracy of Army rockets. He broke into programming in 1960 while working in the Research and Development Department of the White Sands Missile Range in New Mexico, and is proud of the fact that he received his job offer

CLARENCE RUSSELL (right) teaches MSSD student Kris Gigliotti how to operate a computer.



VILAS JOHNSON, a computer programmer, received his job offer from Goddard the day John Glenn made NASA's first manned orbital flight.

Silent World

from Goddard just two hours after John Glenn splashed down on February 20, 1962. At Goddard, he has worked at various jobs including the design of on-line telemetry data processing display systems for OSO and OGO control. Presently, he is working in the Mission Support Computing and Analysis Division performing analysis and software development of computer programs for the attitude determination and control for such spacecraft as IMP, ITOS, SAS and RAE.

Deaf since birth, Mr. Johnson attended the State School for the Deaf in North Carolina and received his BA in mathematics from Gallaudet College in 1959. Off the job, he is Chairman of the Special Interest Group for the Deaf (SIGDEAF) of the Washington D.C. Chapter of the Association for Computing Machinery, and Treasurer of the ACM Special Interest Committee on Computers and the Physically Handicapped (SICCAPH).

Dorothea Madsen, transferred here in the fall of 1962 from the Public Housing Administration as a keypunch operator in the Business Data Branch. She is presently a computer technician who helps control hundreds of job workloads by logging documents from Budget, Accounting, Payroll and many other organizations. These documents are updated and forwarded to the keydata system, a brand new operation that produces magnetic tapes in lieu of punched cards.

At one point in her Goddard career, Mrs. Madsen worked as a clerk-typist for computer programmers and analysts. This was perhaps her most pleasant job since, she says, "The programmers and analysts attempted to make much use of homemade signs to communicate with me. They tried not to let me feel left out of things."

A graduate of the Louisiana State School for the Deaf in Baton Rouge, Mrs. Madsen has been deaf since the age of five. She is married to Willard Madsen of Gallaudet and has two children.

Ameslan, or the American Sign Language, is a prime interest of Clarence Russell. He and some friends have started an experimental Ameslan class for seven students one evening each week. They try not only to teach the language, but to discuss their experiences and the problems of deaf communication. Eventually the group hopes to win a grant that will allow them to teach full time.

Mr. Russell graduated from Gallaudet in 1958, worked for a time at the U.S. Navy Weapons Plant and the Agency for International Development, and came to Goddard as a computer operator in August of 1962. He says teaching the MSSD students to operate computers was a very rewarding experience. Training programs that let students work while in school are ideal. "Since I was unemployed

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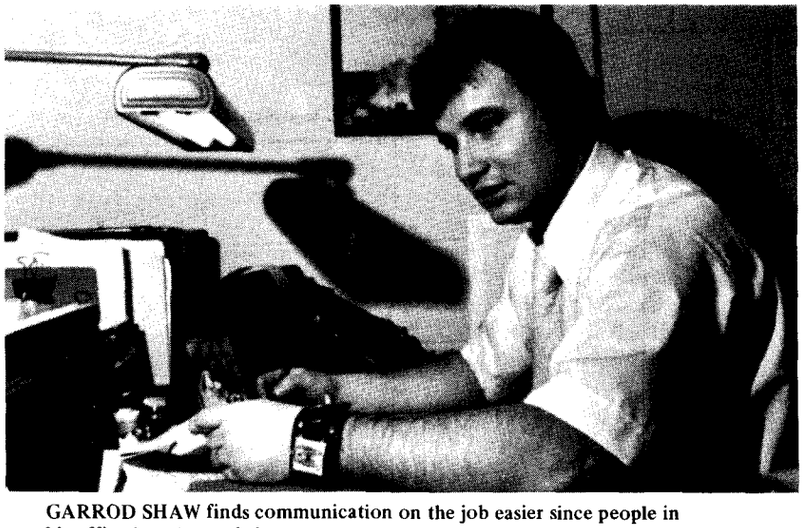

GARROD SHAW finds communication on the job easier since people in his office have learned signs.

GARY BURGESS is a data analyst and mathematician in the Space Plasma Physics Branch.

SILENT WORLD . . . From Page 7

for almost a year after I graduated from college, I had been told that they could not hire me because I did not have training or experience. That first job was hard to find. So training programs are a big answer."

Garrod D. Shaw, a Goddard employee since July of 1972, works as a reimbursable and trust fund accountant in the General Ledger Section of the Accounting Branch. A graduate of Gallaudet College, he has a hearing impairment which he says does not interfere with his job. "I like the work and have the cooperation of my fellow employees. Most of them try to use total communication when they talk to me." Four people in Mr. Shaw's office are learning signs.

Tom Mills, the son of Dorothy Mills of the Manpower Utilization Division, came here in September of 1972 to work in Goddard's mailroom. His job involves sorting mail and binding packages, all of which must be done on time to meet the Center's delivery schedules. A Graduate of the Maryland School for the Deaf in Frederick, he first learned to communicate using the oral or lipreading method, but finds signs helpful. His pastimes include playing basketball with an all-deaf team from Frederick.

Gary Burgess has only been here for about five months, but he has already written programs for the IBM 360 and IBM 1800 computers. He is a Data Analyst and mathematician in the Space Plasma Physics Branch of the Laboratory for Extraterrestrial Physics. Realizing that not all employees in his branch know signs, he has developed a system of communication through writing. Deaf from birth, he has attended schools for the deaf in Kansas and Michigan. He graduated from Gallaudet last May.

Paul Bisbing, Edwin Bergstresser and Kris Gigliotti are the first students here as part of a program developed through the efforts of Goddard's EEO Office and the Model Secondary School for the Deaf. The program is designed to give students a "real life experience" before the student leaves the comparative shelter of the school environment.

As Don G. Pettingill, President of the National Association of the Deaf and Coordinator of the Off-Campus Study at MSSD, so aptly puts it, "The challenge of off-campus study is to prepare students to adequately cope with their rightful places in the real world with the least possible turbulence and frustration during the transition from family and school to first-class citizenship." The EEO Office and the Computing Center feel that the program has exciting possibilities for both the students and Goddard.

TOM MILLS (right) talks in sign with William Bradley.

TU AWARD. Benjamin Seidenberg, J. Park and C. Clatterbuck of the Materials Engineering Branch have received a cash award for the publication of a Tech Brief entitled "Devolatilization of Polymer Resins." Their method involves the devolatilization of a commercial silicon resin by vacuum distillation at 150°C for 24 hours at 1×10^{-6} Torr. The resultant product passed the test for outgassing criteria for use in space flight. Shown above are (from left) Donald S. Friedman, Goddard Technology Utilization Officer; Dr. Seidenberg, Mr. Clatterbuck, Dr. Henry E. Frankel, Chief of the Engineering Physics Division; and Dr. Park. The Tech Brief, number B72-10280, can be obtained through the Technology Utilization Office.

Space Club Holds Essay Contest

The National Space Club announced the opening of the Robert H. Goddard Historical Essay Award competition for 1973. This annual nationwide competition, with a $500 prize, is open to any U.S. citizen.

The contest is named in honor of the world rocket pioneer, Dr. Robert H. Goddard, whose scientific and technological contributions—although belatedly recognized in the United States—helped open the door to space.

Essays may treat with any significant aspects of the historical development of rocketry and astronautics and will be judged on their originality and scholarship. They may bring new information to light or may cast a new and different light upon events or individuals influencing rocketry and astronautics in the United States.

Entries should be submitted by November 1, 1973 to the Goddard Historical Essay Contest, c/o National Space Club, 1629 K Street, N.W., Washington, D.C. 20006. The winner, who will be announced at the Awards Ceremony in early 1974, will receive the Goddard Historical Essay Trophy, Certificate and a $500 prize.

The Robert H. Goddard Historical Essay Award was the first literary competition devoted to historical affairs in the field of rocketry and astronautics.

Rules of the Contest

1. Essays should not exceed 5,000 words and should be fully documented.
2. Essays will be judged on the originality and scholarship by the Committee for the History of Rocketry and Astronautics of the National Space Club, and its decision will be final.
3. Essays should be received by the Chairman, Committee for the History of Rocketry and Astronautics, by November 1, 1973; the winner, if one is selected, will be announced early in 1974.
4. Entries may be submitted by any U.S. citizen, and evidence of citizenship should be included with essays submitted.

Improving Goddard's Grounds Naturally

Goddard and the Soil Conservation Service (SCS) have been cooperating in a study to improve the Center's grounds by returning selected sites to nature.

In trial plantings at Goddard, native and introduced pioneer shrub and tree species have been established by direct seeding, using either grass-legume mixture or a 1-inch to 2-inch woodchip mulch to aid in erosion control. Direct seeding of woody plants produces low maintenance cover, shortens the time needed for development of woody species on grassed areas, and improves wildlife habitat.

On February 9, 1973, Charles Dupree, Building and Grounds Manager at Goddard, and H. Wayne Everett, Manager of the National Plant Materials Center, SCS, reviewed the direct seeding trials and plans with the Howard County District Conservationist, Jack Helm; Howard County District Manager, Bob Ziehm; and Columbia General Electric Grounds Maintenance Supervisor, Harper Griswald. Helm, Ziehm, and Griswald are interested in seeding woody shrubs and trees on low-maintenance and wildlife habitat improvement areas in Howard County, Maryland. They, too, need information on how to use direct seeding on different kinds of sites.

The planting trials at Goddard are being supervised and evaluated by the National Plant Materials Center, Soil Conservation Service, Beltsville, Maryland. Results of the trials will be released jointly by the Soil Conservation Service, the Maryland State Highway Administration, and the Federal Highway Administration, because the Soil Conservation Service has a cooperative agreement with these agencies to find useful species of woody plants and to develop techniques for seeding them on highway roadbanks in Maryland. Goddard is one of the sites being used for the study because the soils here are typical of the coastal and fall line soil series found in Maryland.

Plantings of low-maintenance woody species are benefiting the grounds maintenance program at Goddard by reducing the acreage of grass which requires weekly mowing. The grounds maintenance plan at Goddard calls for a series of reductions in the weekly mowing acreage from 400 acres to 60 acres, beginning in May 1973. This will be accomplished by allowing some areas to return to native shrub species, mowing some areas on a semiannual or annual basis, and seeding some areas to woody plants after removing the turf. Up to 15 acres of new plantings are planned for spring 1973 and 1974. In two to three years many of the plantings will be producing attractive flowers in spring and summer and food and cover plots for wildlife in fall and winter.

JOHN KIMMONS of the Soil Conservation Service and Floyd Williams and Arto Wise of Pride Incorporated spread a straw mulch on a slope near the old WWV site.

ON A HILL overlooking Goddard's "lake" are Wayne Everett (left) and John Kimmons of the Soil Conservation Service's Natural Plant Material Center; and Chuck Dupree (right), Goddard Building and Grounds Manager. They are checking the early spring growth of seeds spread last fall. The seeds, including loblolly pine and tatarian honeysuckle, will "return the bank to nature" and check erosion. Watch for the growth which should be visible from the road this summer.

BILL GREEN (left) of the Plant Operation and Maintenance Division, and Wilmore Bradely of Pride Incorporated, hold two kinds of mulch used in the Goddard/SCS experiment. Wood chips and straw are being used to hold the soil until the seeds of woody plants can grow.

Revised HEAO Program Under Study

NASA is developing plans for a scaled-down version of the High Energy Astronomy Observatory (HEAO)—a project which has been suspended since January for budgetary reasons.

Preliminary plans call for three flights between 1977 and 1979 to study some of the most intriguing mysteries of the universe—pulsars, black holes, neutron stars and supernovas.

While these plans are progressing well, it is expected that HEAO will remain in the suspended state, with only minimum expenditures of funds, for at least a year.

Under the revised plan, scaled-down observatories will be launched by smaller rockets and carry fewer scientific instruments than originally planned. In addition, much of the equipment will come from designs developed for other satellites which have already flown.

The HEAO program was created to place into space scientific instruments capable of performing high sensitivity, high-resolution studies of celestial X-rays, gamma rays and cosmic rays. These phenomena cannot be studied from Earth because of the obscuring effects of our atmosphere. They have been observed previously only by sounding rockets and balloons, and by small satellites which do not possess adequate energy resolution or sensitivity for the very low fluxes being studied.

Information returned by HEAO will help provide a better understanding of the nature and origin of such high-energy astrophysical phenomena. This knowledge, in turn, may provide clues to some of the "newest" and most mysterious objects in the universe.

AN EVENING OF MUSIC AND DRAMA

The Goddard Music and Drama group (MAD Productions) will present "An Evening of Music and Drama" on Friday and Saturday, May 4 and 5, at 8:00 p.m. in the Building 3 Auditorium. A varied program is planned, with contributions by the MAD Drama Workshop, the MAD Chorus, the Goddard Men's Chorus, and the MAD Combo.

The Drama Workshop will present a one-act play, "The Lady's Not for Burning," by Christopher Fry. The play is produced by Ginny Zanner and directed by Gene Smith. It is set in or near the 15th century and involves a young woman accused of witchcraft, a disillusioned soldier demanding to be hanged, the town mayor, and his chaotic household. These characters interact to create a witty, entertaining hour of drama and comedy. Acting in the play are Julian Roberts, Susan Elliott, Carolee Wende, Herb Whitelock, David Moulton, Shirley Thomas, John Schneider, George Fleming, Bill Cruickshank, and Gene Smith.

The 30-voice MAD Chorus, directed by Tom Butler with accompaniment by Gil Mead, will sing a medley of songs from "Oklahoma," selections from "My Fair Lady" and "Camelot," and a group of Fred Waring arrangements. Tom will also direct the Goddard Men's Chorus in several barbershop numbers, and Tom Cherrix's MAD Combo will play a medley from "Fiddler on the Roof."

There will be no charge for admission, but a donation for Children's Hospital will be accepted at the door. Free tickets are available at the GEWA trailer or from one of the participants.

Chess Champion

GODDARD CHESS CLUB. Tom Vallee (above) was winner of the club tournament held on February 13. Floyd Stecker was runner-up, and Phil Smith was recipient of the ladder advance award. The club extends thanks to Al Geelhaar for one of its best run tournaments and congratulations to the winners.

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SPOTLIGHT ON SAFETY. Mathew A. Opeka (right), Facility Operations Manager of the Test and Evaluation Complex is "Mr. Catalyst" of T&E's safety program. Through his personal interest in matters affecting safety, T&E has one of the most visible safety efforts on Center. His first hand observations of many T&E operations and his personal contact with T&E personnel and visitors indicate that he is concerned about their safety. His interest carried on after working hours as shown by his recent completion of a home study course for supervisors sponsored by the National Safety Council. He also participated in the recent one-week course on system safety held at Goddard. With him here is A. O. Lekebusch (left), T&E's Safety Officer, checking on a reported safety discrepancy in the test facility.

CLIP AND SAVE

Plating, Protective Coatings and Electrochemical Processes Available from Fabrication

The Electrochemical Processes Application Section of the Experimental Fabrication and Engineering Division provides a variety of metallic coatings, surface treatments and related services to Goddard's experimenters. This and future articles, designed to be clipped and bound in a 4¼" × 7¼" looseleaf binder FSN 7510-281-6177, will become a source of technical data for applications to Flight and Ground Support use.

In future editions of the Goddard News the writer will explain the needs and uses of the following processes: precious metal depositions including gold and silver; coatings for optical uses; precision photographic reproductions, enlargements and reductions; metallic depositions and other surface treatments of aluminum and magnesium; electroforming of various metals such as copper, nickel, and gold; stainless steel surface treatments including passivating and electrochemical polishing; and chemical and electrochemical depositions on nonconductive surfaces.

For additional information regarding the above subjects contact Earl Ellis, ext. 4870, or call in person, Building 5, Room 25.

Wallops Open House

The public is cordially invited to visit NASA Wallops Station on Saturday and Sunday, April 14 and 15, from 10:00 a.m. until 4:30 p.m. EST.

Visitors will be permitted to view facilities at the Wallops Main Base and the rocket launching sites on Wallops Island. The Main Base and Wallops Island are approximately 7 miles apart. A tour of both areas will require one to two hours.

At the Main Base, the Range Control Center and an exhibit area will be open to visitors. In addition to space science displays, movies are scheduled several times each day. Inside the Main Gate area, full-scale rockets are on display and visitors also may stop and take pictures here. Personnel will be on hand to answer questions that visitors may have concerning Wallops operations.

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